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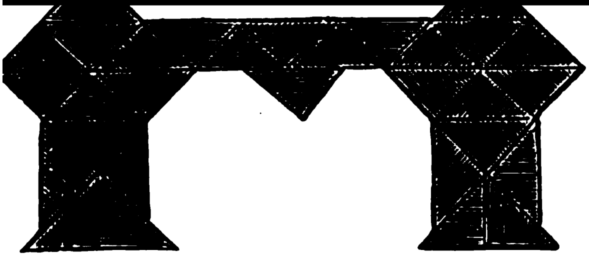
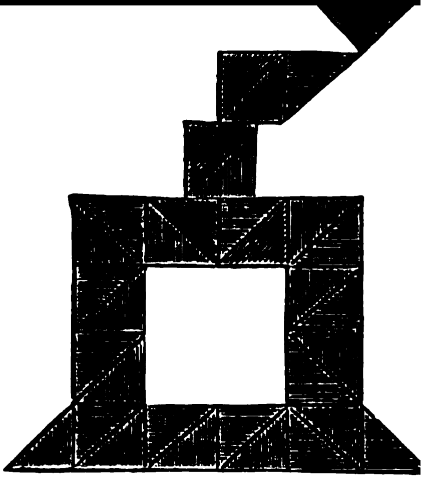
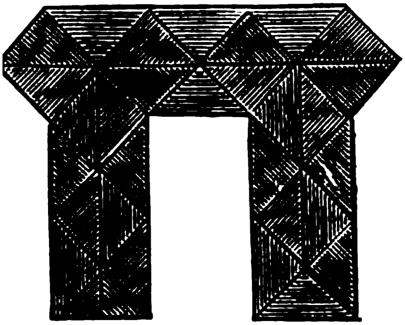


a fire-place with two vases upon the mantle-piece,



a coffee-mill,

’14.



a chimney,

215.

The Kindergarten Guide: The gifts.-v.2. The occupations

Mrs. Maria Kraus-Boelte, John Kraus

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THE

KINDERGARTEN GUIDE.

AN

ILLUSTRATED HAND-BOOK,

DESIGNED FOR THE

SELF-INSTRUCTION OF

KINDERGARTNERS, MOTHERS, AND NURSES

BY

MARIA KRAUS-BŒLTE

AND

JOHN KRAUS.

FIRST VOLUME:

THE GIFTS.

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NEW YORK: E. STEIGER & CO.
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PREFACE.

The Kindergarten Guide is the result of twenty years' experience in the kindergarten, in Germany, England, and America.

When the first chapters of this book were written, the Authors had in view the preparation of a small hand-book, solely for the use of the mothers who visited their "Mothers' Class", and who, repeatedly, requested the publication of the lessons and lectures there given.

This plan was, however, entirely changed, and the enlargement of the work rendered necessary by the desire for information which was very generally expressed, alike by persons visiting the kindergarten, and by interested inquirers.

The pupils of the Training-Class conducted by the Authors, desired a manual which should aid them in their work, following out the course of teaching and training with which they had become familiar; letters were received from all parts of the land, but especially from mothers who were far away from any kindergarten, asking for advice and instruction, and needing information minute enough to supply the place of personal observation ; many of the nurses who, by attendance with the children at the kindergarten, had obtained such partial information as circumstances permitted, manifested both interest in, and appreciation of, the work, and became desirous of wider knowledge as to the proper treatment of children, and the means of making the nursery more and more attractive; teachers and principals—male and female—Sisters of Charity and other Orders inquired, both personally and by letter, to what extent Frœbel's Occupations might be introduced into the schools, asylums, and institutions under their charge; and, finally, many persons, superficially or imperfectly trained as teachers in so-called kindergartens, becoming dissatisfied with their preparation, honestly confessed this fact, and asked for the means of obtaining, by the aid of some book on the subject, a better understanding of kindergarten instruction, based upon the teachings and methods of Frœbel himself.

These numerous and urgent requests for increased information, therefore, induced the Authors to enlarge the plan of their projected work, and, now, this book is offered to all interested in the kindergarten, as one which endeavors to meet, in some measure at least, these repeated demands. It is to be hoped that the book, as a result of much earnest labor bestowed upon it, will convey to those who attempt to follow its directions, most of the help and assistance needed.

Of one thing the readers of this *Guide* may be assured, viz.: that from it they may obtain the genuine praxis of Frœbel, developed, it is thought, in the light of his ideas. The attempt has been made to render it all that such a guide should be as an aid to mothers, kindergartners, and nurses, and to all who have the happiness and careful training of the children at heart. Especial attention is invited to the final chapter, on the spirit and manner of story-telling and of talking and playing with the little ones. The information it conveys, and the suggestions it offers, may be alike interesting and instructive to all who are intrusted with the daily care of children.

Inasmuch as the result of right training becomes every day apparent in the development and progress of the children under their charge, all thoughtful persons who are earnestly engaged in kindergarten education will be repeatedly surprised at the new channels of pleasing instruction which are opened before them, and at the rapid advance of the children themselves in intellect and knowledge as well as at their harmonious physical development.

It must be borne in mind, that it was the intention of Frœbel that his system of educational development should be continued beyond the kindergarten age of the children. His labors, therefore, were not confined to the kindergarten alone, which was but one of the several features of his new and peculiar system.

The benefit of Frœbel's educational idea will completely be appreciated only, when it shall have been applied to every stage of educational progress—when, in fact, the kindergarten is considered but the preparation for a higher education based upon the same fundamental principle; a system which will permit each pupil to manifest his own individuality freely and without restraint, and allow the fullest scope to his talents, tastes, and tendencies.

The course which is to be pursued after that of the kindergarten has been concluded, is indicated or, at least, hinted at, in the different Gifts and Occupations, in each of which the mere playful work is to be gradually superseded by actual, practical work.

The careful student will find that Frœbel's method furnishes the starting-point for each science and for each profession.

In conclusion, the Authors will not fail to say expressly, that even the most earnest study of this book, or of any other book, will never enable a person to undertake successfully the management of a kindergarten—any attempt to do this must prove unsatisfactory. Nothing short of a thorough understanding of the system and its philosophy, nothing less than the attainment of a certain manual dexterity, and a practical knowledge of many other apparently unimportant matters—all of which can only be acquired by going through a full course of instruction in a Training-Class—are, in addition to natural aptitude, necessary for a person who desires to become a successful kindergartner.

NEW YORK, February 22d, 1877.

The Authors.

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THE FIRST GIFT.

THE BALL.

> "Deep meaning often lies in childish play."
> SCHILLER.

What is the First Gift?

The First Gift consists of six worsted balls, each ball having one of the colors of the rainbow—blue, green, yellow, orange, red, and violet (purple). They are contained in a box, in which are also six strings, of different colors, corresponding with the balls.

Why has Frœbel used the ball as the first of his means of occupation?

Because he based all his means of play on mathematical foundations, and because the ball is the simplest and completest ground-form, and the one in which all other forms are contained. He also observed that the ball is the first plaything the mother gives to her little one; wherever we find a child we find a ball, as, indeed, it is a favorite plaything alike with young and old. It is simple, light, and soft; it can be easily taken hold of by the child and fascinates because of its tendency to constant motion.

What elements for intuition does the ball represent?

A child quickly learns to observe and compare. The ball gives the elements of *form*, *color*, and *motion*, and the child finds the best opportunity in this simple body, for the observation and comparison of size, form, color, and motion.

What is taught by the ball in regard to form?

The child learns from it what a complete round body is, in which neither planes, nor lines, nor points can be seen. The ball is an unseparated whole, a simple ground-form; it represents the bodies of the universe and is to be found again and again in nature's countless forms —in seed, bulbs, buds, fruit, flowers, the shapes of trees, and numberless other things.

What does the ball show in regard to color?

In the six balls appear the *three primary colors*, *blue*, *yellow*, and *red*—and their intermediates, the *three secondary colors*—*green*, formed by the combination of blue and yellow; *orange*, formed by the combination of yellow and red; *purple*, formed by the combination of red and blue. By a knowledge of these combinations the harmony of colors can be explained.

What kind of motions can be illustrated?

1—Rest on an immovable body—the table, chair, etc.

2—Rest on a movable body—the hand, etc.

3—Motion on an immovable body—on a horizontal (flat), a vertical (upright), or an inclined (slanting) plane.

4—Motion on a movable body.

5—Motion upon, in, or near a movable body.

The ball on a string illustrates:

1—Swinging motions (lateral motion—like a swing or pendulum).

2—Revolving motions (rotary motion—like a hoop or revolving wheel).

3—Pulling and pushing motions (mechanical action—like the pulling or pushing of a body).

4—Hopping motions (elasticity—a bounding or rebounding body).

What kinds of bodily exercise are produced by the ball games?

Grasping at, or catching the ball strengthens the muscles of the hand and arm; moving the ball on the string before the child educates its eye in fixing a point; the games in the open air excite the healthy action of the entire body and awaken grace in all the movements; these are the first teachers of gymnastics—as when the ball hops, the child hops, etc.

To what extent does the ball belong to the Kindergarten, as a part of its teaching?

The following games are destined for the child in the nursery *up to its third year*, although the exercises should be repeated in the kindergarten, with children who have never learned them:

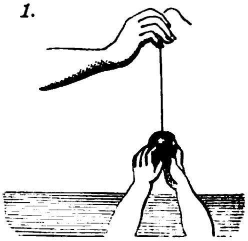
1 — The ball is fixed to a string, which, as the child takes hold of the ball, is gently pulled, so that it escapes from the child's hand, and thus, it learns from observation:

a) possession—to have,

b) loss—having had,

c) recovery—receiving it back again.

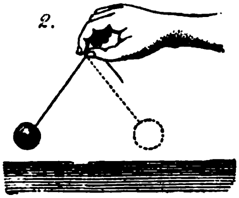
1.



In this manner, when the ball is returned into the child's hand, it has gained *three new ideas:* to have, to have had, to have again.

Mothers and nurses talk to the little one soon after birth and speak, or sing to it, of things it cannot, as yet, at all comprehend; therefore it may be easily understood that Frœbel accompanies almost all his occupations with words or tunes. Rules for this cannot be given; the feeling must be the guide, for each mother has her own language with her child, as each kindergartner with the children under her care.

2—The ball fixed to the string introduces the games: *tic-tac; ding-dong; here—there; front—back; right—left*, etc.



Frœbel's view was that the babe should not look into vacancy, but rather have some object to fix its attention upon.

3—Next follow the games: *up and down; slowly and quickly; near and far; it comes—it goes*, etc. The tones of the voice must indicate the *up* and down, the *far* and near, etc. The younger the child, the slower the motion should be, and consequently the longer the string to which the ball is attached.

The child receives at first only *one* ball, but it soon instinctively seeks the opposite to this unit, i. e. multiplicity, which proceeds from the unconscious desire to *compare*, and in which the child seeks the tie of manifoldness. Now, if the six balls are of equal size and of the same material, *color* forms this tie, and the diversity of tints leads the child to the act of comparing. The balls representing the rainbow hues form a harmony of color, and, as the children of light, are the symbols of the highest peace.

When two or more balls are given to the child, it should be done in the different connections, or combinations. Thus, when two balls are used, they should be of the colors which are complementary, as red and green, or blue and orange. When three balls are given, they should be either

a) the primary colors: red, blue, and yellow; or
b) the secondary colors: purple, green, and orange; or
c) two primary and one secondary color, as red, blue, and purple, etc.

In taking a *certain* number of balls, attention is directed to *number*.

Of course, neither mothers nor kindergartners should use the words "primary" and "secondary"; they are used here merely for guidance and explanation. In and through play, the child becomes acquainted with colors and their relations to each other.

The ingenuity of mothers, or kindergartners, will suggest much more than can here be mentioned. As the child grows older, two or more balls may be used. If the little one drops the ball, make it stoop to recover the toy, for it is well to accustom children both to cause and effect in their actions.

4— Roll the ball softly, roll the ball;
Be careful, darling, it don't fall.
Where has it gone? down on the floor?
Oh! there it rolls out by the door.
Baby shall go and get the ball,
Be careful, darling, it don't fall.

These or similar exercises should be continued repeatedly as long as the child is amused by them. Repetition always makes an impression deeper and more precise.

5—The qualities of the ball may also be noticed in little rhymes;

Very pretty is the ball,—
Red and round and soft and small.

or

Oh! see the pretty ball,—
So round, so soft and small.

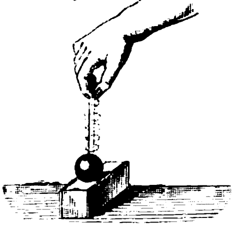
or

The ball is round, and rolls each way,
The ball is nice for baby's play.

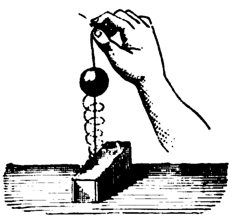
6—When the child begins to speak, it will be amused by learning to repeat these words:

High-low; high—low;
See it come—see it go:
Now fly, up high,
Pretty ball, say "Good-bye."
Little baby goes to rest,
Mamma's arms his cozy nest.

3.



4.



It should be borne in mind that accuracy and precision of movement rest and soothe the child.

7—At other times change in the time of the song and motion will afford amusement:

Gently, gently moves the ball,—
Now it hardly moves at all;
Hop, lazy ball, hop.

Swiftly, swiftly now it flies,
Almost hidden from our eyes:
Stop, whirling ball, stop.

8—Let the ball strike the same spot on the table three times, singing on the same note,

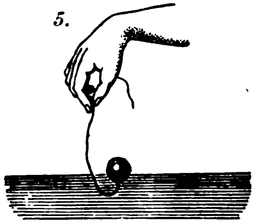
la, la, la,

or

tap, tap, tap,

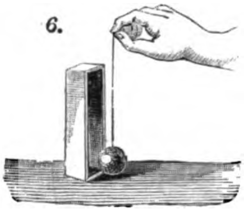
or striking the ball on different places on the table,

tip, tap, top,—li, la, lo, etc.


5.

9—A game can also be made with the following rhymes:

Hop, little ball, hop:
Hop over the box,
Hop into the box,
On to the box, hop:
Now hide in the box,
Run back of the box,
And now lie still on the top.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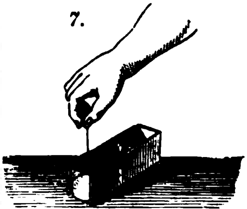

7.

The child on its mother's arm sees how the chickens, pigeons, and sparrows pick up the crumbs or seeds;

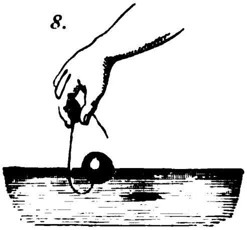
pick—pick,

she says to the child, and with the ball makes the motion—

pick—pick.

Or, the father uses the hammer, while the mother imitates its movements with the ball—

knock—knock.


8.

Thus the child is taught the various kinds of motion and their accompanying sounds and to represent them with the ball.

Again, the string attached to the ball is first lengthened, then shortened, and the

ding—dong

is spoken or sung until the time when the mother may introduce, in their place, the words

slow—ly, slow—ly,

or

quick-ly, quick-ly.

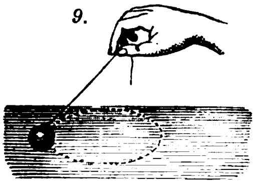
The child should use the ball as often and as long as it likes and, of course, should be left alone to play with the ball as long as it is contented. The mother may thus note the path which she must follow in playing with her child, and the signs of progress which the child shows.

No strict dividing line can be drawn between the ball games suitable before the kindergarten age and those after the third year.

In the kindergarten the child must learn to represent, itself, that which formerly it has only seen or observed.

10— **Over and back;**
forward and backward, etc.

9.



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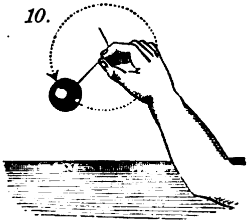

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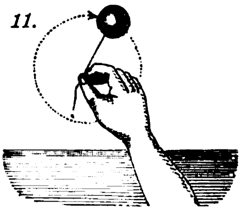


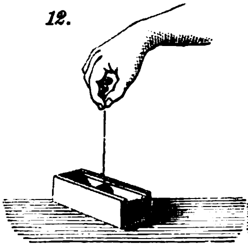
11— **Round, round, round;**
to the left—to the right, etc.;

12—Let the ball on the string rebound on the table:

tip, top, tap.

13—Let the ball hop and suddenly disappear in the box (at which the child looks sad)—let it re-appear (the child looks pleased).

12.



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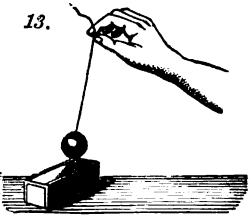
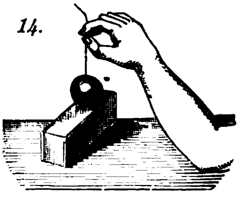


14— **Up, up, up,**
on the top of something.

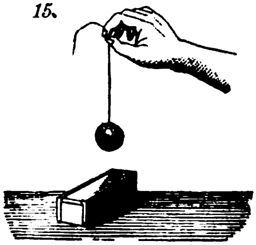
15— **Down, down, down.**

14.



16— Jump, jump —

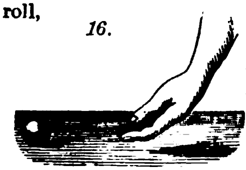
15.



jump over.

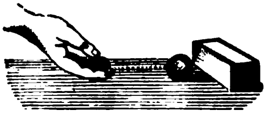
17—Roll, roll,

16.



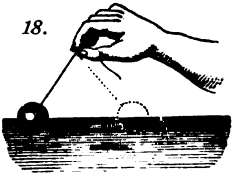
and roll back again, like a carriage.

17.



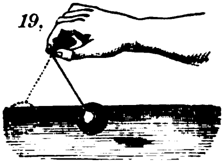
18—Go left—

18.



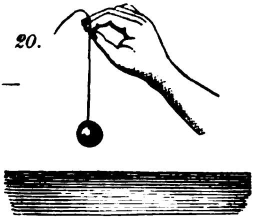
now right.

19.



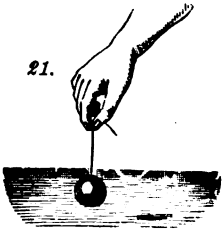
19—Wind up—

20.



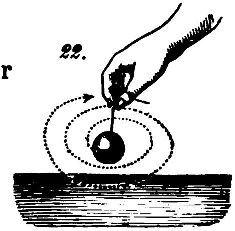
wind down.

21.



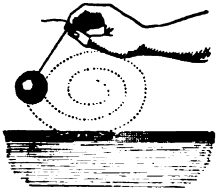
20—Smaller

22.



and larger, also winding and unwinding it round the finger.

23.



21— Go, go, go,—come, come, come.
22— There it falls—now it's gone.

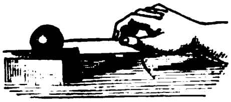
23— Now the ball is sinking—see!
How it's rising up to me,
Sinking—rising;
Sinking—rising,
Tell me, children, as it flies,
How the ball can sink and rise.

Then let the child sink and rise, and use the same words for it.

24— Find the ball.

25—Pull, pull, pull, now it's yours.

24.



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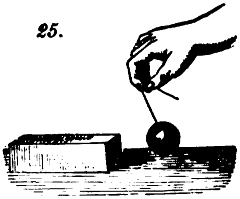
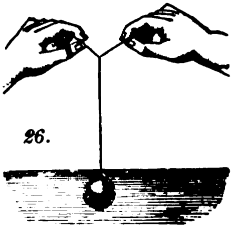


26—The ball may be twirled round and round, on a double string.

27—If the ball accidentally rolls away, a game may be made, thus:

See the ball, it's rolling yonder.
From your hands it likes to wander.

26.

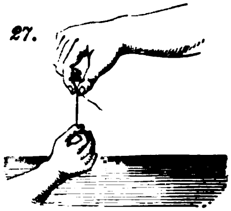


The ball without the string may be used as follows:

28— Open your hands; take in the ball.

29— Now close your hands—the ball seeks rest.

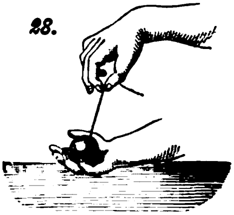
27.



30— Open your hands, the ball awakes.

31— Close your hands—the ball now rests.

28.

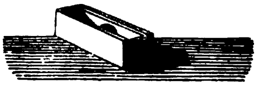


After the first year *form* and *color* can be taken into consideration and comparisons may be made, thus: The red ball is like a rose, an apple; the yellow ball is like the sun, or a lemon ; the green ball is like the grass, etc.

32—When the play is finished and the ball put away in the box, the following may be spoken or sung:

Now it joins its little sisters,
  And will stay at rest:
Close the lid, close baby's eyelids,
  Put him in his nest.

29.



33—When the child grows older, new ideas must be added as, for instance:

Raise the ball—sink it down ;
Raise the heels—sink them down ;
Raise the arms—sink them down ;
Move your right leg up and down ;
Move your left leg up and down ;
Now stand straight—now bend down.

34— Take the ball and swing it round ;
Swing your arms now, round and round.

Here the song of the windmill may be introduced:

See the windmill, how it goes,
While the wind so briskly blows,
Always turning round and round,
Never idle is it found.

35— To and fro the ball is swinging,
Like the church-bell slowly ringing;
Now it's turning round and round,
Like the wheel upon the ground.

To and fro my arm I swing,
Now I turn it in a ring.

And whate'er the ball can do
I can try and so may you.

36—The so-called *master-game* may be played, thus: The child throws the ball upwards *once*, and, by catching it, becomes an apprentice; by throwing it up *twice* and catching it each time successively, becomes an assistant; by catching the ball *three* times, without missing, becomes a master; the last accomplishment may be accompanied by the following words:

Once, twice, thrice—
This is very nice.

37—Game No. 27 may be further developed by passing the ball from one child's hands to those of the next, and so on, using the words:

Near and far the ball will wander,
Till it comes from roving yonder.
  It is bright, it is fair,
It can wander every-where.

38—This may then be changed so as to include the name of a child:

Near and far will Harry wander,
Till he comes from roving yonder.
  He is young, he is fair,
He can wander every-where.

39—Or:

Near and far we all will wander, etc.

40—Another game may be made by holding the ball with both hands:

The ball is beautiful and bright,
  And round and soft and small.
I look upon it with delight—
  My darling, darling ball.

41- Or:

The darling ball is sleeping
Fast in my hands, below,
And while at it I'm peeping,
I'll rock it to and fro.

42-

The ball is moving here and there;
  'Twould like to play,
  And roll away,
But safe I'll keep it in my care.
  Moving—rolling—
  Moving—rolling—
Near and far it's ever strolling.
Oh, the ball I love to see,
For it always pleases me.

43— The red ball moves now here, now there,
'Twould like to play,
And roll away,
But safe I'll keep it in my care,
Moving—rolling, moving—rolling,
Forward—backward, forward—backward,
Up and down, up and down,
Oh, the ball I love to see,
For it always pleases me.

The movement ball-games are the proper play-material for the kindergarten, as, for instance: *The huntsman, dog and hare, the birds'-nest*, etc.

44—Teach the children the following exercise: Let them stand in one or two rows and say, "lift your *right* hands up—sink them down," let them do the same with the *left* hands, and then with *both* hands. Then the children are told to stretch out the right hand, a ball is given and acknowledged by "thank you" (a little lesson in politeness), and questions follow as to qualities, color, etc.; let them next repeat the sentences: "The ball is green," "The ball is round," etc.

Whatever is pronounced in these "conversational lessons," should be articulated accurately and distinctly, in order to develop the organs of speech.

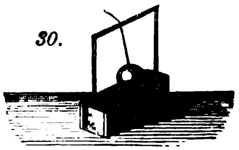
If children are taught to *speak* well, before they learn to *read*, they will never afterward require special instruction in the art of reading with expression.

45—The children, standing in a circle, with the right hand outstretched, receive each a ball, while the left hand gives another ball into the right hand of the next child, or *vice versa*—thus *giving* and *receiving* at the same time. The hands must be held in such a manner, that the balls may be placed in them readily, and, if a ball falls to the ground, it remains there until the game is ended, in order to prevent a disturbance. This exercise should be done quickly and gracefully, and the children should be directed *not* to follow the ball with the eyes, but to be guided solely by the sense of touch. During the game, the children may sing:

Red and orange, green and blue,
Mingling with the purple hue;
All these rainbow tints I see,
As the balls come round to me.

46—In the following game, the motion of the bell should be imitated with the ball on the string, or with the arms;

Bell so high,
In the steeple,
Calling, "Come to church, good people!"
Loudly ring,
And sing your song,
"Ding-dong-ding——ding-dong-ding-dong!"


30.

47—The children form a circle, and one stands in the centre with a ball. They all sing:

My ball is soft and round and gay,
I find both health and strength in play,
A child who long the ball has known,
Can catch it with one hand alone.

After the song is finished, the child tosses the ball into the air, the others counting "one, two, three," etc., until the ball falls to the ground, when another child takes the place in the centre, and the song is repeated.

48—The children sit, or stand, in a circle, giving the ball with both hands into the hands of their next neighbor, and sing:

Now the ball comes round to meet us,
Could it speak, 'twould surely greet us,—
Wishing us "good-day, good-day!"
As we send it round in play.
Now it's coming, now it's going,
While our cheerful song is showing
That we're very happy here,
With our friends and teachers dear.

As a change, the name of a child may be mentioned instead of the ball, thus:

Here comes Harry round to meet us,
With a smiling face to greet us, -
Wishing us "good-day, good-day!"
As we meet him in our play.
Now he's coming, now he's going,
While our cheerful song is showing
That we're very happy here,
With our friends and teachers dear.

49—Standing in two rows, the children of one row throw the ball to those opposite and *vice versa.* This exercise may be performed by three or four rows of children.

50—Tossing the ball into the air and catching it, throwing it against the wall, etc., can also be introduced as a game.

51—Two balls are rolled in opposite directions, passing each other without touching; or

52—Two, three, or four balls are rolled together on the table, across and back again, without rolling off the table; or

53—Four children are placed at equal distances from one another, representing the four corners of a square (or three, forming a triangle); the ball being rolled from one child to the other will make the outlines of the square (or triangle).

Parents and teachers should endeavor to take a comprehensive view of the entire organism and disposition of the child and should adopt such means as will develop all its faculties.

Consequently, such playthings and games should be used as are capable of becoming, by the right use, *means of education*. The child's nature should be considered, as also its stage of development, and the relation in which the plaything stands to the child, as to *quality* and *quantity*. The child observes surrounding objects, and retains impressions of them. Of all its playthings, it will like those best which are able to arouse its dormant faculties and extend the limits of its mind. The ball is the article most conveniently adapted for this purpose; its qualities are such as will excite curiosity; it is the symbol of motion—of life—of action; it is the first primary form and also the most perfect one, containing all other forms in its own. Colors are the productions of light, and help to awaken the mind's light through the pleasures they create. The six balls, which constitute the First Gift, are introduced to the child in every possible manner and connection; they illustrate the general properties of form, color, size, weight, volume, and density. One ball, alone, is a complete *whole;* when united with the others, it is a *part;* it rests and moves; it has an invisible centre; it can represent many objects and, by its use, every muscle of the child's body receives exercise and strength, while the intellectual and moral faculties are also developed.

To catch this bounding playfellow all the child's energy is required, and all the young strength is necessary to retain it, when caught. Thus, in the simplest of games, are we enabled to assist in the harmonious unfolding of the soul's capabilities by means of the body's advancement, following in the three channels of the soul's development, viz.: will, feeling, and power of thought.

When the impressions of childhood are left to chance, education cannot ensue. The weaker the powers of the child, the more do they require help and support, that is, education.

The ball is one of the most ancient of all fabricated playthings. It entered into many of the favorite games alike of the Greeks and the Romans, while the children of both nations used it as a toy.

Every game, well directed, may promote the child's future good; in play, therefore, the first feelings of friendship are awakened and the tenderest sympathies fostered. When the child has received impressions of form and color and of the other general qualities of matter, it thereby obtains a knowledge of the fundamental properties of things. Thus a sort of plastic alphabet is created, by which the book of concrete things that surround us may be read aright,—the first book which children must learn to read.

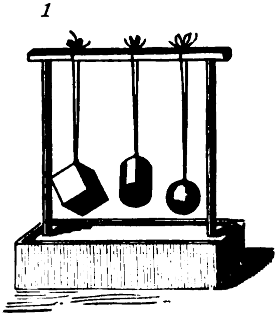
The process of thought which carries the knowledge of a child back to its earliest impressions can only be indicated. Frœbel did not invent the process of the child's development, he only discovered and showed the way in which the child naturally proceeds.

The mind's development must be assisted by others in its first stages, or there can be no such thing as the education of the earliest childhood. The mind of a child, while it is still instinctive, cannot be compelled to go *this* way or *that*; its development must follow the paths marked out for it by nature, a process which is always logical and according to reason, and, therefore, always according to law.

THE SECOND GIFT.

SPHERE, CYLINDER, AND CUBE.

In what relation does the Second Gift stand to the First?



The Second Gift is the *opposite equal* of the First. The ball is soft, rough, light, and almost soundless; the sphere, cylinder, and cube are hard, smooth, heavy, and resonant, and call forth more exertion on the child's part. The cylinder and cube differ from the ball in form; the sphere is, like it, round and movable, while sphere, cube, cylinder, and ball alike have each three axes which intersect each other at right angles. The sphere is the intermediate point between the ball, the cylinder, and the cube; the cylinder connects the sphere and the cube. While the sphere demands more of strength and ingenuity in its use, the ball is simple and easily handled, it gives the first impression of the spherical form and is the earliest object known to the child; the playthings, therefore, that succeed it, should connect themselves with it.

Thorough knowledge is the necessary condition for the complete conception or perfect understanding of any object; with such knowledge we may easily pass to the conception of higher things.

With the child, therefore, to its first object should succeed others which give it the earliest opportunity for instituting *comparison.* By this, of course, is meant not reflective comparison, but only the physical perception of differences which exist among things,—the direct impressions received in the first year of existence. In the Second Gift the child recognizes the already known form,—the spherical—and thus the same impressions which it received from the ball come to it with this new object. To facilitate the act of comparison and to deepen the new impression which it conveys, the objects to be compared should be as dissimilar as possible – opposites. Thus the contrast between a sphere and a cube is a *contrast of forms.*

As in this act of contrast or comparison the difference is perceived, so also should the resemblance be noticed, for comparison implies a certain equality in the things compared, both qualities of this comparison making what is known in mathematics as differentiation, or the exact forms of inequality.

In what relation do the three bodies forming the Second Gift stand to each other?

The sphere and cube are opposites; the cylinder is the intermediate form between the two, combining the curve of the sphere and the planes of the cube. From these three solids, or fundamental forms, the properties of all other bodies may be deduced, and they also convey the impression of *units* and a *whole.*

In what manner are the sphere and cube opposites?

The sphere has but *one* surface, the cube has corners, edges, and six faces; the sphere is movable—the symbol of motion; the cube is in repose—the symbol of rest; the sphere shows, in motion, always the same form; the cube, when revolving upon either of its axes, presents no longer the form of a cube; the sphere is a unit, the cube is a multiplicity; the sphere moves at the slightest touch, the cube stands firm.

What joint relationship does the cylinder hold to the other bodies?

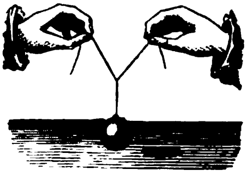
In the cylinder, the sphere and the cube find a certain union or likeness. The cylinder and sphere have, as common qualities, roundness and mobility; the cube and cylinder have flat faces, edges and repose, alike, while the cylinder resembles both cube and sphere in its properties of firmness, heaviness, and resonance, and in its flat, smooth, and rounded faces.

What exercises are best performed with the sphere?

The systematic games with this gift (as with all of Frœbel's gifts and occupations) are closely connected with the appearances and experiences of the nursery, where mothers and nurses try to quiet the restless child by moving first one thing and then another. The sphere enters into the exercises of the second half of the baby's first year, and with it the ball-games can be repeated, partly free, partly with the string attached; to do the latter properly, a small eyelet is inserted in the sphere.

While the ball gave much pleasure to the child, the sphere, with its accompanying noise, has an increased charm, for it is a child's nature to obtain from all the objects which surround it a certain tone, or to make them "speak". For this reason the little ones delight in dropping hard substances, or in knocking them against the table—to them noise is life.

2.



It is, perhaps, not easy to understand how the child's development is furthered by bringing this activity into connection with its play, but as the constant repetition of looking intently at distinct forms will train the eye, the child will soon learn to connect single objects.

The mother or nurse should always take part in this plan, for only by her love for the child, by her familiarity with, and attention to, its games, can the real good come—the development of the little one's soul and mind and body.

All the ball games can be repeated with the sphere ; the following are a few which sufficiently explain themselves:

1— Never lazy shall we find the sphere,
Now it rolls—oh! see it disappear.

2— The sphere fills up $\left\{\begin{matrix}\text{my}\\ \text{your}\end{matrix}\right\}$ little hand,
The cube within it cannot stand.

3— If nothing holds the ball,
To the ground we see it fall.

4— Round and round, 'tis my delight,
From right to left, from left to right.

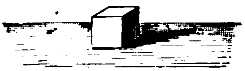
5— Roll and turn, my pretty sphere,
Roll and turn, now far, now near.

6— See me turn, or see me fall,
Always see in me the ball.

The cube can be used in the same manner:

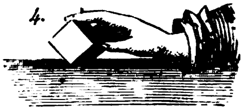
7— The cube now is resting, it stands on its face,
And standing so firmly, cannot lose its place.

3.



8— The cube can't stand on edge, 'tis clear,
It tumbles there, it tumbles here.

4.

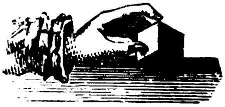


9— Now it stands on edge, and it does not fall,
For it's leaning firmly against the wall.

10— How nicely on one point I stand,
When steadied by your little hand.

11— Now look! and you will quickly learn,
How well upon one point I turn.

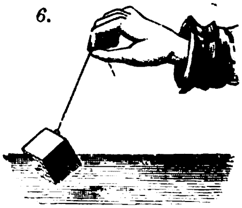
5.



2— Here's but *one* corner—where can the rest be?
Open your hand wide, and then you will see.

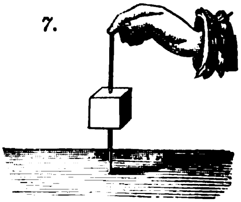
13— Only *two* corners now, here can you see;
What are the rest doing—where can they be?

6.



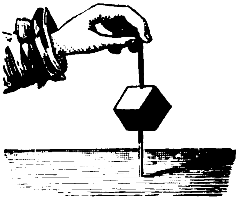
14— By the edge I hang and swing,
I can move, but cannot sing.

7.



15— With this stick through my centre I turn round and round,
And look like a roller, that rolls on the ground.

8.



16— Put the stick through my edges and give me a twirl,
And now round and round in a circle I whirl.

17— With a stick through my centre, I rapidly run,
And my edges and corners delight in the fun.
To you they are hidden, but there they remain,
And when I stand still, you will see them again.

1 — The cube lies in your hand quite still
And you may press it, if you will.

In these plays the child should be kept active as much as possible.

19— To the ground you cannot go,
While we hold you tightly so.

If the cube should fall, however, the mother sings:

20— Baby's hand is yet too small,
So the cube must have a fall.

The child should never in any case be forced to play.

The sphere may also be used to mark or keep time while singing.

As with the ball, so with the sphere, the child should be allowed to play with it, as long as it likes, both in the nursery and in the kindergarten.

The sphere should be compared with surrounding objects.

The child may be blindfolded, and the sphere, a ball, an apple, a potato. etc., may be given successively into its hand, and the difference or similarity existing between the sphere and the other objects may be noticed by comparison.

All these exercises which the mother teaches in the nursery, should be repeated by the child in the kindergarten; both the right and left hand should be exercised, or the cube may be held between the thumb and the second or third finger, etc.

Has color been considered in the sphere?

A black and a white sphere may be given to the child, these two colors being—so to speak—the poles in the circle of colors, symbolizing light and shade—the day and night sides of life.

With what does the childish imagination compare the sphere?

The child compares the sphere with an apple, a cherry, its own head, etc.; or the sphere represents to the child "pussy," "a cart," "birdie," etc.

What kind of exercise is the cube intended for?

The cube is first studied in all its parts; its faces (sides), edges (lines), and corners (points or angles) are counted, and their positions with relation to one another are defined; the child, in this way, receives the conceptions of up—down, front—back, left—right, horizontal—perpendicular, right-angles and inclines (slanting lines).

Either of the pieces comprising this Second Gift may be given to the child, after it is six months old. In the second year the cube becomes the teacher of arithmetic to the child and is compared with the sphere.

The games for this period are:

21—
If *one* finger of your hand
Holds me—on one leg I stand.

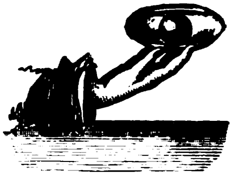
9.

22—The child learns that more than three sides of the cube cannot be seen at the same time.

The sphere on a string can swing, dance about, describe a circle, whirl round, imitate the motion of a pendulum, show a perpendicular line, etc. In all these exercises many rhymes should be used; for they aid and strengthen the memory, draw greater attention to the manipulations, and cultivate a musical and poetical taste in the child ; as, for example:

23—
Round I run, when in a plate,
Straight across, when on a slate;
Move your hands and bid me go,
Strict obedience will I show :
Let me rest, or run, or roll,
Make a bell of me to toll,
Let me swing, or dance, or fall,
Always I'm your darling ball.

10.



The child is a born poet, and its little world is a paradise of poetry; in its vivid imagination, it endows with life, and grace and beauty the rudest and simplest forms, even as in the history of the world, we find that the ancient Egyptians and Persians, in the infancy of their nations, attached a distinct personality to all the common objects of life.

What are the best free exercises with the cube ?

The cube, if held in different positions : upon one side,—upon an edge,—or one corner, and at a distance—either above or below the eye, and straight opposite, or more or less towards the right or left,—will show accordingly: one, two or three surfaces or sides; four, seven or nine lines or edges; four, six or seven points or corners; and four, eight or twelve angles. — Froebel says : "Each succeeding 'toy' is already contained in the preceding, and becomes visible when rotated in a certain way. Thus, when the cube is turned round the axis of its sides, it shows the cylinder; and when revolving around its axis of the corners, the double-cone becomes visible"; etc.

Further: "the piercing of the cube, and the introduction of a little staff through two opposite sides, edges or corners, shows at once the displacement of the axes and their changed direction". —

What motions does the pendent cube give?

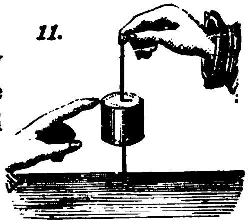
1—Lateral motion—like the swinging of a pendulum;
2—Continuous motion—when the cube is pulled by the string;
3—Rotary motion—when it revolves on its axis.

The first two motions give the same result as the swinging and pulling of the ball and the sphere.

Which are the axes of the cube?

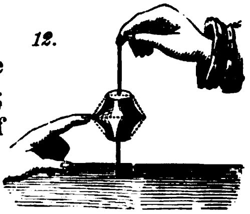
1—The axis of the faces is an imaginary straight line drawn from the middle of the face to the middle of the opposite face; when turned quickly over upon this axis, a cylinder is shown.

11.



2—The axis of the edges runs from the middle of one edge to the middle of the opposite one; turning quickly on this axis, a form like the hub of a wheel or a conic form is presented.

12.



3—The axis of the corners may be drawn from one corner to the opposite one; revolved upon it the double cone is seen.

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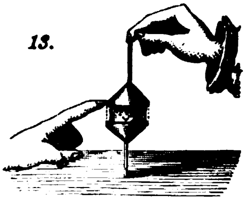

It may be that this latter form, found by turning the cube around the axis of the corners, led Frœbel also to introduce at first *the cone*

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as the intermediation form between sphere and cube, together with the cylinder. Frœbel says himself, in regard to this: "As the cylinder excludes the intuition of corners and the fixed rotation upon one point, it calls for, and commands in its turn, a body intermediary between the three others; that is to say, uniting the properties of the three — corners [points], edges [lines], sides [surfaces], plane as well as curved; it is the revolving cone."

How is the rotation of the cube produced?

The cube is pierced in the directions of its different axes, and a stick is placed through this aperture. By twirling the stick, the cube rotates; or, at the point of either axis an eyelet is placed to which a string is fastened, by means of which the rotation is effected.

In what relation do the three axes stand to each other?

The axis of the edges is longer than the axis of the faces; and the axis of the corners is longer than the axis of the edges.

What conception of the cube does the child have?

It regards the cube as a square stone, a block, a bale of cotton, a table, a box, etc.

How should the cube be studied?

Examine the surfaces of the cube and compare them with the surfaces of similar objects in the room, as: the top of the table, the door, the slate, the windowpane, etc. Notice the impression which is made by the surface on the sense of touch; as, the level smoothness of the face in opposition to the sharpness of the edge and the piercing points of the corners.

What lines does the surface display?

This may be found by comparison and illustration; the perpendicular and the horizontal may be illustrated by numerous lines in the room; likewise explain and illustrate the right angles. Then let the children find *other* lines in the room and express their position in words, as: at the top — to the right or the left; at the bottom—to the right or the left.

Holding the cube up, let the six surfaces be counted and their places defined by the words top, bottom, front, back, and right or left sides; then compare the cube with the room and point out the same six surfaces.

Of what shape are the surfaces?

Square.

What is a square?

A square is formed when all the sides of an object are of equal length and the angles of equal size. Use this description to advantage by explaining the difference between corners and angles, and then point out the corners and angles in the room and show how the room is made up of squares.

All instruction requires the active use of the intellect with some degree of original thinking, if the acquisition is not to be simply rote-learning, or mere cramming.

The sphere, cylinder, and cube are material for play, inasmuch as they give the readiest conception of the law of the "connection of opposites" and are means for the simplest discrimination of form. This law of the "connection of opposites" is the fundamental law of knowledge and at the same time is the law of all mental activity.

Experience must be founded solely upon the things of the visible world, but these things can only be known by the especial properties which distinguish them. All visible things possess the properties of form, color, size, number, material, sound, weight, taste, smell, etc., in various degrees and proportions. If the child is eventually to become acquainted with these properties, it must first receive the impressions of them which lead to this higher conception.

It is exactly these impressions which Frœbel's materials of play are fitted to give with greater clearness and precision than is otherwise attainable. These materials should, therefore, be introduced into the very first period of the child's life, for early impressions are much more lasting, as the power of resistance is then but feebly developed.

Artificiality cannot exist where one follows the course of nature, beginning, like nature, with the simplest ideas in order to progress carefully and consecutively to the desired knowledge; no intelligent thinker can doubt that the mind of the child necessarily proceeds thus, perceiving first one thing and then another — first the simpler forms and gradually the more complicated ones.

It must not be forgotten that the great multiplicity of objects which make up the surroundings of the child are not lessened by the knowledge which comes from the use of the occupations; the object of the play should be to serve as a help to acquaint the child with the nature of these surroundings. The play itself retains the characteristics of the unconscious and apparently aimless trifling of this stage of life.

The normal forms first looked at and then handled at this period give to the childish imagination a succession of forms, which in time give place to a succession of thoughts, because, like thoughts, these forms are logically arranged. The properly developed senses lead on to correct observation and comparison, and the elements of thought are thus set in motion.

The kindergarten has in its normal form the foundation upon which to rear, and by which may be fostered this power of leading on the developing thought of the child. The law or principle of activity, inborn in the childish mind, as well as the law of the "connection of opposites" above mentioned—has marked itself as a direct impression of the senses, and the kindergarten uses this principle to serve as a guide-post to the child in its productive occupations, in the shaping of its forms and the combinations of its figures.

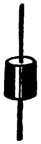
What exercises does the cylinder offer?

The cylinder gives intuitions both of rest and of motion. Looked at when at rest it presents three faces—one round and two flat sides—and two circular lines or edges, but neither points nor corners. The two flat faces are of equal size and the round side is larger than the other two. The length of the round side is equal to the diameter of one of the two other sides.

The cylinder has three axes for points of motion:

1—The axis of the flat faces;

14.



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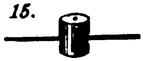

2—The axis of the round face;

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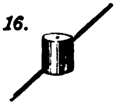
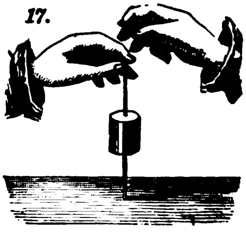


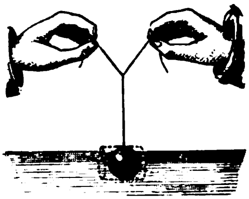
3—The axis of the edges.

17.



Turned upon the first axis, the cylinder shows only the cylinder, as the sphere showed only the sphere.

18



Turned upon the second axis, the sphere is presented.

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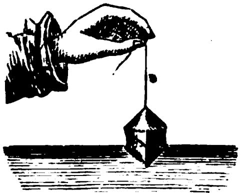


Turned upon the third axis, the double cone is visible.

What law is deduced from the revolution upon their axis of each of the component bodies of the Second Gift?

That the sphere is contained in and contains all the forms of these bodies in itself, inasmuch as it is seen in the cylinder, and the cylinder and cone appear in the cube.

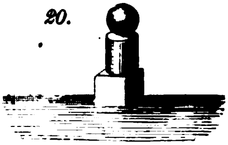
With what does the child compare the cylinder?

With the trunk of a tree, the arm, the finger, the neck, etc.

In what relation does the Second Gift stand to art?

The cube, the cylinder, and the sphere as a triad, or trinity of forms belonging together, are the basis of another triad of architecture, the column, which is composed of the pedestal or base (the cube), the shaft (the cylinder), and the capital (the sphere). Such a monument stands at Frœbel's grave with his name and this inscription—"Come, let us live with our children."

20.



Should the cylinder be used in the nursery?

Yes; repetitions of the exercises with the ball and sphere should be made, as also those exercises with the cube which the cylinder permits. These can be best introduced with or immediately after the exercises with sphere and cube.

What new quality does the cylinder show?

The aptitude to be used as a "roller."

24— **With a stick through my centre I turn round and round,**
And look like the roller that rolls on the ground.

What other exercises may be performed?

a) Comparison of the cylinder with the sphere;

b) comparison of the cylinder with the cube.

Connection always requires similarity or analogy. According to Frœbel's ideas, the mother must make use of nature and of the objects that surround the child, in order to awaken, to satisfy, and to cultivate the senses.

By this means it is rendered capable of perceiving, clearly and with precision, the objects of the external world which reflect their images in the child's soul and arouse the power of representation, which is necessary, in order to reproduce, objectively, the same things in the mind. Of course, the simplest bodies are best adapted for this purpose as it is always difficult for the unpracticed eye to distinguish one form from another. This can be rendered easy when contrasts are presented. Cube and ball are a contrast; the connecting link which possesses similar qualities with each of the contrasted objects in the cylinder. Thus these three forms make one complete whole in which is apparent the law of harmony in nature, which guides the child in all its occupations. Using the three forms together, building them up, counting with them are all valuable exercises, thus:

Take the cube and say "one."

Place the cylinder upon it and say "two."

Add the sphere to this and say "three."

Then ask the child to show "one," "two," "three," etc.

This also prepares the child for the Third Gift.

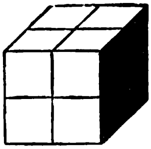
The sphere, cube, and cylinder give the child its first mathematical conceptions. Instruction with this Gift can even be carried forward into the school.

How should the Second Gift be given to the children?

Each child should have a box containing the complete apparatus: a sphere, a cube with eyelets, and a cylinder, together with strings and stick; or, better yet with an additional cube, perfectly plain, so as to be prepared for all the exercises.

THE THIRD GIFT.

1.



What is the Third Gift?

The Third Gift is a box containing a cube, subdivided by three cuttings — two perpendicular and one horizontal—into eight equal cubes, each one representing the large cube, on a smaller scale.

What relation does this Gift bear to the First and Second?

It is, in one sense, in direct contrast to the former Gifts, because here a whole is divided into parts, whilst sphere, cube, and cylinder remained undivided. In the Second Gift, the impression conveyed to the child was that of a unit and a whole; in the Third and the three following Gifts the divided whole is represented. The Second Gift addresses the intellectual rather than the physical nature of the child; in the Third Gift, both qualities are equally exercised. A similarity exists also between these two Gifts, inasmuch as the box, in which are the sphere, cube, and cylinder, like the box in which is the divided cube, contains parts of a whole.

The point of resemblance common to both Gifts is in the cubical form of a part of the Second and in the similar form of the Third.

Frœbel, taking nature as his model, uses the ideas he thus receives, in his organization of methods of education which are made applicable to the intelligence of childhood. Without a division and resolution into its component parts, the examination and thorough knowledge of any substance is impossible. The study of material knowledge serves as a basis for the study of intellectual things.

Divisions arbitrarily chosen leave no clear idea in the mind; it is, therefore, indispensable that all divisions be regular and conformable to law, as nature, always conforming to a strict mathematical law, in the vegetable kingdom determines the orders of bodies by the forms and numbers of the parts.

In what relations do the parts of this cube stand to one another?

They are opposite and equal; opposite by their different position, equal by their equal parts and size. The lines of division—or cuts—enable the child to keep in mind the appearance of the whole.

What is the choice of the divided cube, as the Third Gift, founded upon?

In the third year, the child endeavors to investigate, for itself, the interior construction of things. When left by itself, with some new and unfamiliar object, the little one examines it, and then tries to see what is inside, or having taken it to pieces, strives to repair it, and by reuniting the parts to make the object whole again; or seeks by changing the form of the object, to discover new qualities and the way in which it may be put to different uses. From a knowledge of the outside, instinct prompts the desire to know the inside, and, therefore, children, at this age—to the regret of their parents—usually destroy their toys, and find enjoyment in playing with the fragments, rather than with the complete toy.

This it was that suggested to Frœbel the divided cube as a toy, which is designed to foster the spirit of investigation in the young mind, while, at the same time, it stays the destructive element.

Does this Gift belong to the kindergarten?

It does, for with it the beginning is made in the kindergarten; that is, if the first two Gifts have been well exercised in the nursery. And the balls, the sphere, cube, and cylinder are not superfluous in the kindergarten; for if they have been well used in the home, they may here serve for comparisons, and are, therefore, not out of place, if used to a limited extent, for the purpose of testing the memory.

How is this Gift used in the kindergarten?

The cube is separated, and its several parts are again united so as to form a new cube, or new forms are constructed.

In what manner should this Gift be introduced?

The child is first taught to take the cube out of the box, *undivided,* in order to inculcate alike the sense of *order* and the idea of *completeness.* The child may then divide the cube, and play or build with the parts as long as it pleases. Gradually, it should be led to examine the parts carefully, and to see that each one is an exact counterpart of the whole cube, having the same form, sides, corners, and edges—but all smaller; then will also be learned the meaning of up—down, front—back, right—left, etc. The forms can be repeatedly altered, and will be found infinite in variety. Thus, the power of representation will be exercised, and the perceptive and imaginative faculties will be cultivated, while the child is also taught neatness and order in the proper way of opening, emptying, refilling, and closing the box.

What is the duty of the mother or kindergartner?

To aid the child in the expression of its own ideas, by little stories, conversations, comparisons, etc.

How long should the child be left to its own resources?

As long as the child is happy, it is best not to interfere; when no longer contented alone, let the mother or kindergartner take her own box, and show one or more examples of formation, for the purpose of calling out new ideas.

With this Gift, the first lesson in artistic skill is taught.

What should not be permitted?

Carelessly throwing the blocks from the box. The child should learn early and in a practical manner that "order is Heaven's first law." And experience with the Gift will teach this precept, as, for example, by showing that not half the number of cubes will find space in the box, if it is filled contrary to the regular order.

What kind of forms can be made by dividing the cube?

Dividing the cube into two, four, and eight equal parts, gives certain different forms, by means of which the child may acquire mathematical conceptions. These forms are, therefore, termed forms of cognizance or *knowledge*, or mathematical forms; they correspond to the forms of knowledge in logic.

How is further instruction in these forms of knowledge given?

The whole cube is divided in the three different directions, respectively, each division making two halves of the cube. In doing this, the children are taught to say: "a whole—two halves," and "two halves —one whole."

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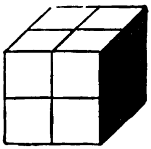

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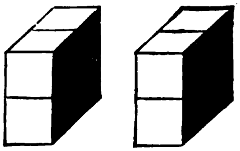

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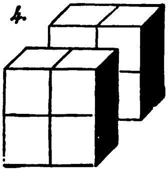

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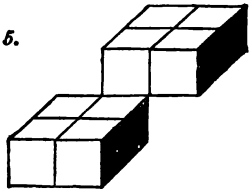

Dividing the halves equally again, they should say: "a half — two quarters," etc.

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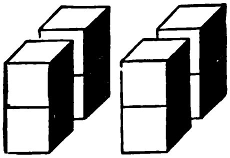

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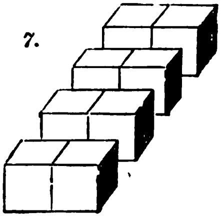
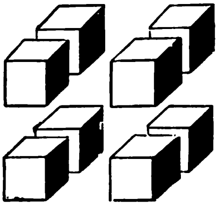


"a whole — four quarters," etc.;

"a whole—eight eighths," etc.

8.



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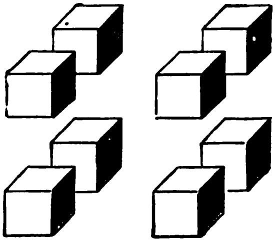

In this manner, addition, subtraction, and multiplication can be clearly and easily illustrated — word and action always going together.

Proper regard should be had to the age of the child, and other necessary precautions should be taken.

Other exercises are:

Let the child count the parts of the cube, and put them together again, to form a large cube.

Place the eight cubes in one line, side by side. That this may be done accurately, the checkered cross-lines on the table will be of assistance, forming square inches for the guidance of the child.

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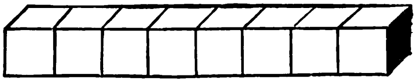

Place the eight cubes in two equal lines.

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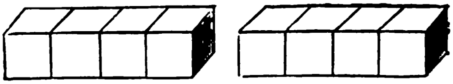

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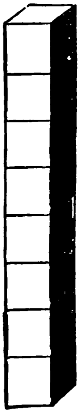

Place the eight cubes in one line up and down.

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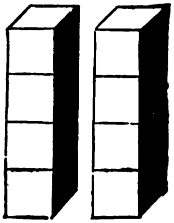

Place the eight cubes in two lines up and down.

Divide each so that four parts are gained.

Divide each, again, so that eight parts are gained.

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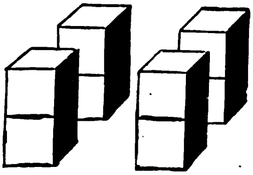

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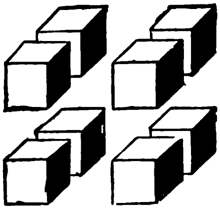

Make a cube, and divide it to form an oblong running from left to right, or, up and down.

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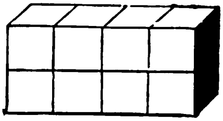

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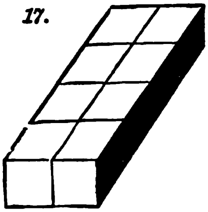

Turn it so that it stands on its longest side, etc.

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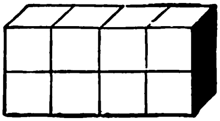

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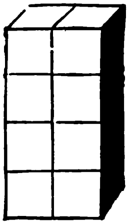

In what manner are the cubes joined so as to make a form of any kind?

The cubes touch each other either at the sides or faces, or at the sides and corners, or edges.

What other forms can be made?

Forms of *life* and forms of *beauty.*

What are forms of life?

Forms of *life* are such as represent things which are seen in the daily life of the child, as, for instance, a house, a table, a sofa, a basket, a tree, etc.

By making forms which shall represent these every-day objects, the child becomes a workman, is introduced into the knowledge of common things, and finds employment for the *power of will,* for *energy,* and the desire to *do* something.

How should this be done?

Without practical results, the perfect harmony even between head and heart will prove unsatisfactory. The forms of life or utility lead the child out of the sphere of mere imagination and idealism to the matter-of-fact necessities of daily life. It becomes, now, architect, mason, carpenter, shipwright, or whatever its imagination suggests by means of this simple material. The mother or kindergartner should begin with the simplest form, and proceed to develop, step by step, changing one form into another, without destroying. The child will, thus, soon discover that accuracy and neatness are indispensable to success. It would be absurd to dictate one unchangeable series of forms; the greatest freedom of choice should be granted, as long as the important principle of connection, instead of isolation, is inculcated.

The younger the children, the greater will be the tendency to pile up the forms. The column. therefore, may, at once, be commenced with, repeating, as each cube is added, the word "up". Afterwards, as one by one the cubes are taken off, say "down". This exercise is for children in the nursery, under three years of age.

To this may also be added: one up—one up, etc., or, one down—one down—one down, etc.; one up—two up—three up, etc.; one down—two down—three down, etc.; from below—upwards—and from above downwards.

When the cubes are arranged in one straight line and pushed forwards, the steam-cars may be represented.

When the child stops its play, the mother should say as the cubes are placed in the box—"go into the box"—"another go into the box," etc.—"now they are all in the box."

In the kindergarten the cube should be used as follows:

First divide the cube and join the two halves into a low wall; then dividing this and placing one half upon the other, construct a high wall.

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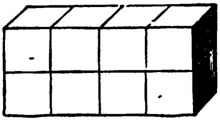

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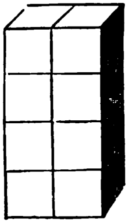

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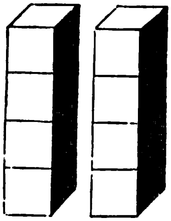

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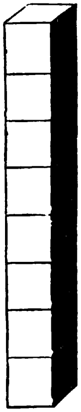

Divide again and make, from the high wall, two pillars; from these, by piling one upon the other, build one tall pillar.

During these exercises the kindergartner or mother has opportunity to talk of, and tell stories about, the objects represented.

This exercise may be varied in this manner;

1—Make the cube; take the front cube on the upper right-hand side and place it upon the rear cube on the left-hand side. This may be called an old-fashioned kitchen stove. Then should follow a conversation about the stove, fire, coal, wood, ashes, and the kitchen utensils, while the little ones will pretend to cook their favorite dishes, etc.

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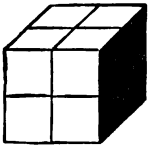

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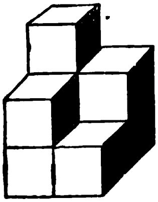

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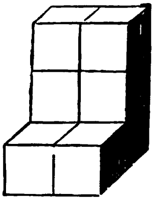

2—Take the forward cube on the upper left-hand side and place it on the rear cube of the upper right-hand side—the child has now before it an arm-chair for grandpapa or grandmamma. The children will then remember all the various kinds of arm-chairs they have seen, and will talk about grandpapa and grandmamma, telling of some kindness or mark of affection which has been received from them; they will listen to some story which the mother or kindergartner makes "grandpapa" tell, and the rough little chair will seem to them very real.

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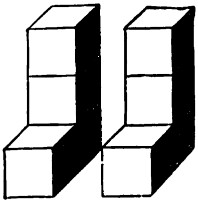

3—Now divide the arm-chair, and make two chairs out of it, one for papa and one for mamma. Papa has come home from business and mamma tells him how good and obedient the children have been.

4—Take one cube from the top of each chair and place it by the side of the chair from which it was taken; this may represent a small table or some similar object, or even the children themselves.

5—Join the two cubes together to form a long table, draw the two chairs up to it, and breakfast, dinner, or supper is served. Besides the little conversations connected with the exercises, short pieces of poetry and songs should be introduced.

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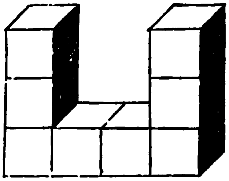

6—By placing the two cubes, representing the table, on the top of the chairs again and joining the chairs together at the seats, a castle or country house, with two towers, is shown.

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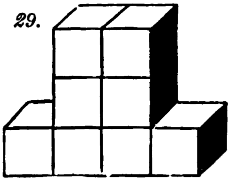

7—Divide this and place the two chairs together, back to back, and the city-hall, with the clock, is represented, while the children sing, moving their arms like so many pendulums:

See it run, see it run,
See the clock's straight pendulum.

8—Take both top cubes down and place them, one on each side, on the lower cube, and again a low wall is made which may be called a garden wall. Then the children may have, some a flower garden, some a vegetable garden, etc., which will allow the introduction of much pleasant and instructive conversation.

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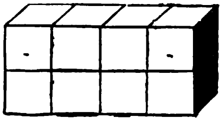
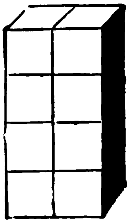
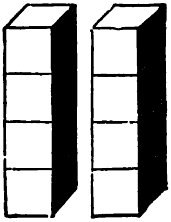


31.



9—Take two cubes from either end of the wall and place them on the top, side by side. This may represent the high wall which surrounds the orchard, etc.

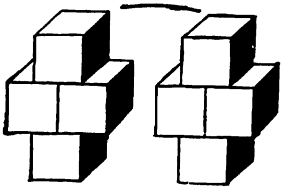
32.



10—Divide the high wall and show the two columns or pillars, or two tall trees, etc.

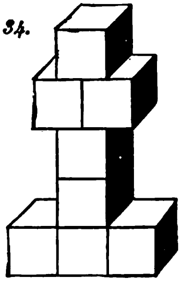
Thus each succeeding form is developed from the preceding one. The following forms, or figures, may be made in the same manner:

33.



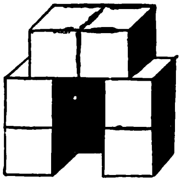
Two crosses.

34.



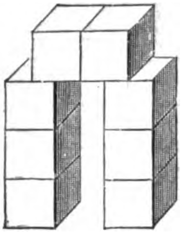
A high cross
with long base.

35.



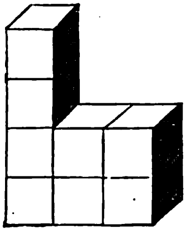
Sentry-box, or arbor.

36.



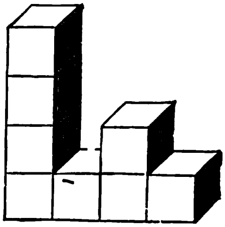
Gate.

37.



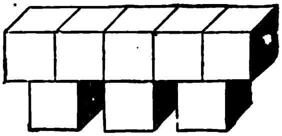
Church.

38.



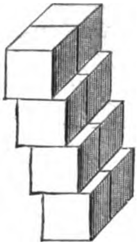
Engine.

39.



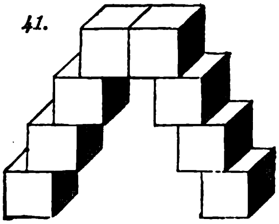
Bridge.

40.



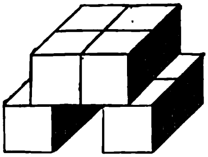
Steps.

41.



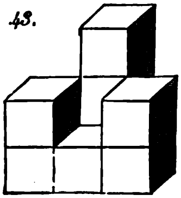
Double steps.

42.



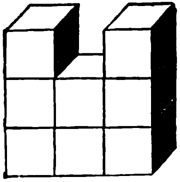
Tunnel.

43.



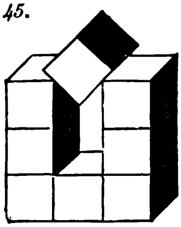
Arm-chair.

4.



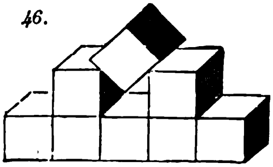
Station-house.

45.



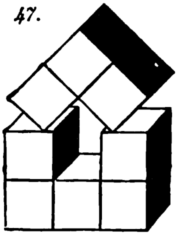
Clock.

46.



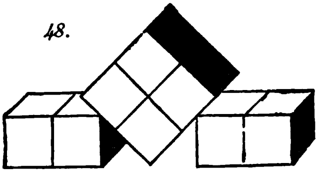
Clock.

47.



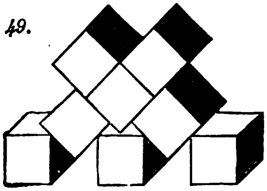
Window.

48.



Clock.

49.



Windmill.

With almost all these various forms some lesson may be taught the child or some truth inculcated. For instance: require it to build "the house where it lives," and while this is being done, converse freely with the children, ask whether they love their home? why? etc. Each child will give a different answer. Or, again, the kindergartner says: "Let us all make a village," and, immediately one child proceeds to make the garden, another builds the school-house, and others the church, the court-house, a cottage, a villa, a farm-house, a well, etc., while, in a pleasing manner, each object may be made the subject for a little lesson.

The departure from the simplicity of nature, aspiration after greatness rather than goodness, has caused society to neglect many of the means by which the soul may be developed and without which there can be no true greatness—no intrinsic worth. Lives which have attained true greatness, will, in nearly every case, be found to have received their molding and earliest impressions under a mother's care. If we look at the well-kept garden we shall see how thoroughly every plant is supplied with the proper amount of temperature, light, soil, and moisture, while even the smallest pebble that may prevent growth and development is removed. From the garden we, too, may learn a lesson, worthy of imitation in our dealings with children, as we think of how much greater value is the nurture of a human being than the growth of a plant.

This is the object of the kindergarten, and the Third Gift is intended as an aid to secure the union between mother and child, between God and the world. Through its divisions, this Gift enables the child to strive after the comprehension both of external appearances and inner conditions; it leads from the conception of a simple unit to the *elements* of which it is composed, and thus prepares the way for rational analysis. This analysis or division of the cubes into parts is followed either by forming the parts again into the *original* whole, or by creating with these given parts a *newly-shaped* whole, thus ending, as should every analysis, in synthesis. In accordance with this development, the child will vary the forms, and will find them infinite in variety. The power of representation will be exercised, and the faculties of perception, reflection, and imagination will be cultivated. The office of the mother or kindergartner, at this stage, is to aid the child in the expression of its own ideas, by little stories, conversations, songs, etc.

What is meant by forms of beauty?

Forms of *beauty* are forms of the imagination in which symmetry is particularly prominent. Their object is to cultivate the sense of the beautiful and the æsthetic – the result of order and harmony. They train the eye to see quickly and distinctly, and the feelings to reject every thing unsightly, and revolt against every thing inharmonious and untidy. They lead the hand to improve steadily, to re-arrange, and to rectify. The great importance of such exercises need not be further dwelt upon, except to add that cultivating the eye to see and appreciate the beautiful, causes the inner perception and intelligence to grow brighter and clearer.

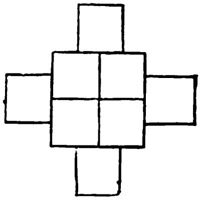
Through this occupation the child becomes acquainted, for the first time, with forms of *beauty*.

How does the child proceed in making forms of beauty or symmetry?

The child places four cubes so that they form a square, each side being the length of two cubes. The other four cubes are placed, each touching, and in the centre of each side of this square, on the right, the left, at the front and back, respectively. Now, let the child move the right-hand cube half an inch (or square) backwards, the left-hand cube half an inch forwards, the cube at the back half an inch to the left, and the one in front half an inch to the right; these four motions produce what is called a "turning figure," representing, for instance, a windmill, and the little ones may sing, cheerily:

See the windmill! how it goes,
While the wind so briskly blows,
Always turning round and round,
Never idle is it found.

50.



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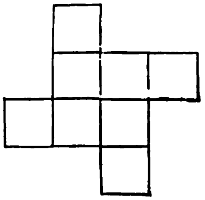
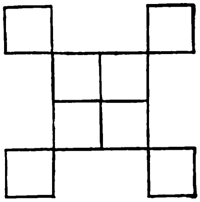


Then move the right-hand cube backwards an inch, the left-hand one forward an inch, the cube at the back an inch towards the left, and that at the front an inch towards the right, and a figure is made which is generally termed by the children "a pretty star — a beautiful form — a *form of beauty.*" The corners of the large square touch the corners of the four small cubes.

In this manner, the cubes can be moved by inches and half-inches around the central square, never losing the original positions which they hold to this square. These are the most difficult of all the forms, and proficiency in their construction can only be attained by careful training. In fact, kindergartners are often discouraged to find that children who enter the kindergarten, regard these forms as tasks, but this is only a sure sign that previous training of eye and hand, and the love of the beautiful and symmetrical have not been developed.

The central square may be placed before the child either as a square or a diamond, the four small cubes touching the sides of the square with their corners or edges, and thus, holding always the same relative position towards their centre, may be moved and changed by regular steps.

52.



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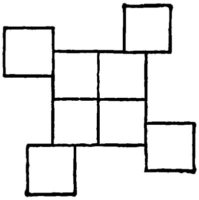

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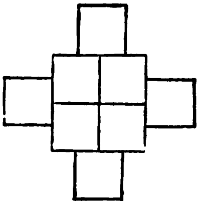

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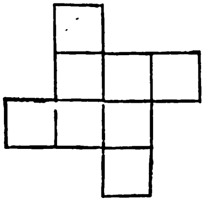

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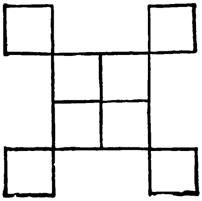

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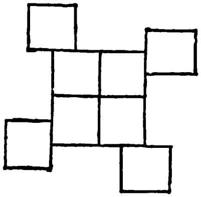

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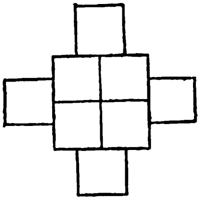

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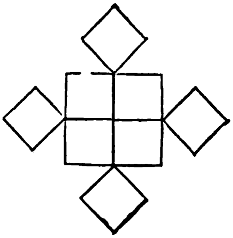

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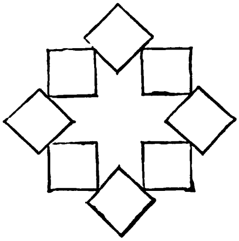

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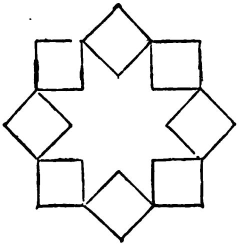

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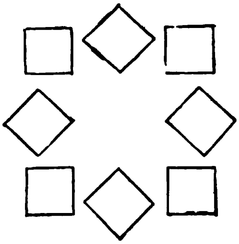

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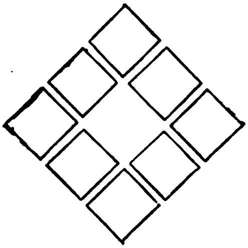

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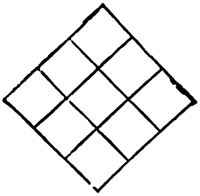

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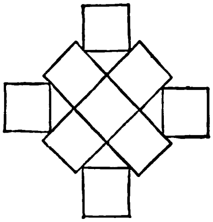

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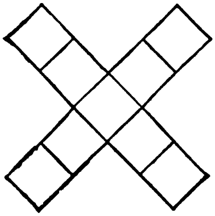

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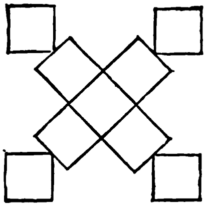

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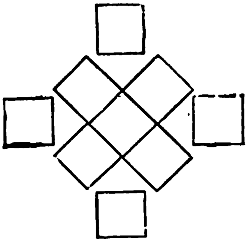

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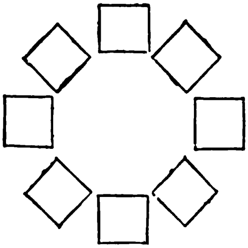

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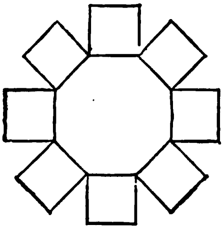

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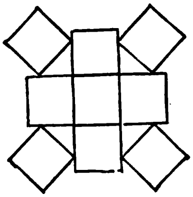

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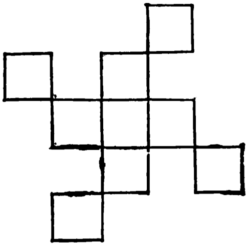

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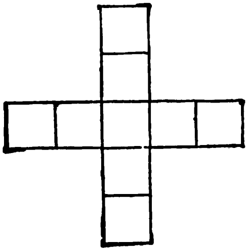

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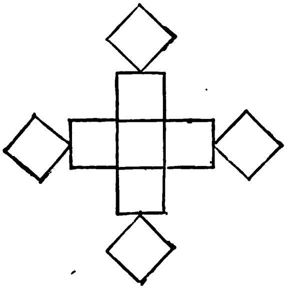

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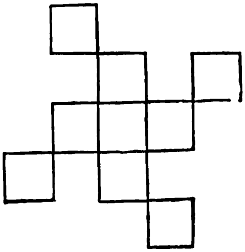

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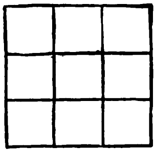

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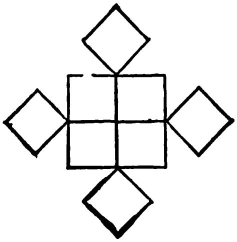

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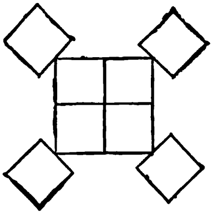

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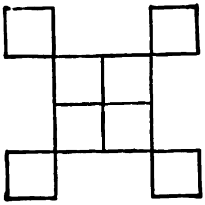

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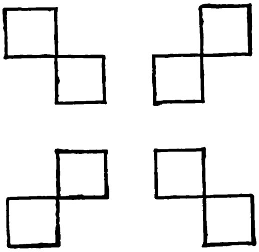

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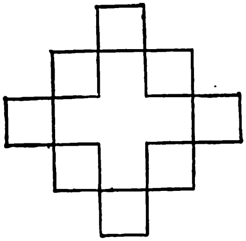
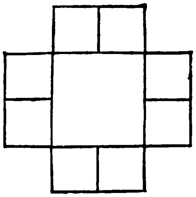


Ornamental forms may be made, with good effect, in which the opposite sides are alike—two-and-two-sided forms.

82.



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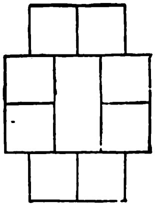

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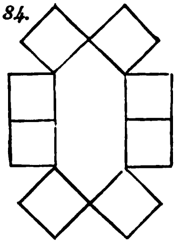

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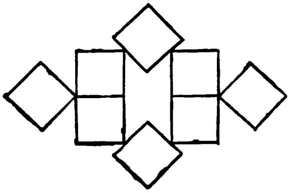

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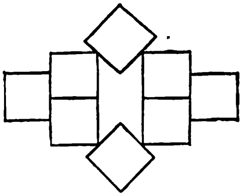

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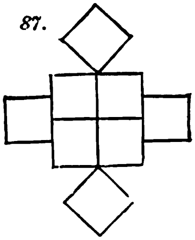

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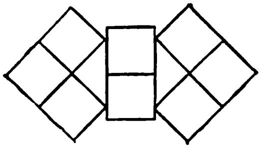

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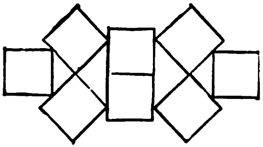

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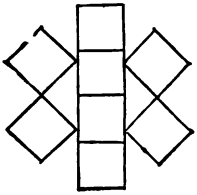

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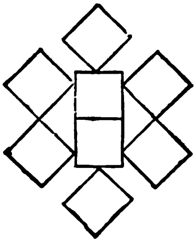

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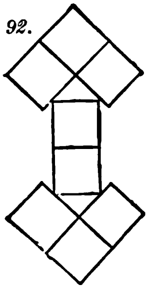

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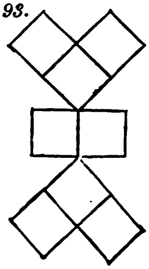

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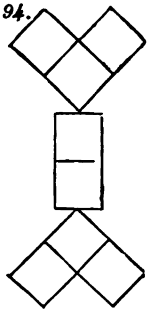

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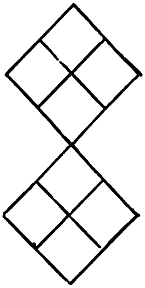

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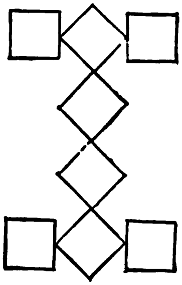

Borders can also be laid out very prettily.

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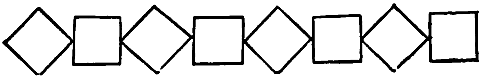

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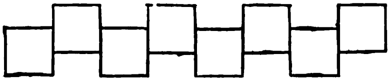

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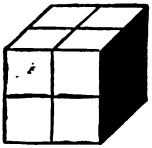

The last form, when this lesson is finished, should always be the cube.

What rule is to be observed in regard to the Third Gift?

For each and every figure all the eight cubes should be used.

Should the children be allowed to build as they please?

Yes; it is even desirable that they be allowed to do so, though certain rules should always be adhered to. Two or three children may also be allowed to construct the forms together.

What other rules are to be observed?

Proceed logically and naturally from one given form to a new one. No form should be destroyed in order to construct another. Thus the child becomes strictly methodical in all its doings as well as in its reasonings.

What other results in the development of the child does the Third Gift produce?

The child exercises its mental powers, its understanding, imagination, taste for the beautiful, and will. It also becomes acquainted with some important knowledge as regards the law of weight and the law of equilibrium, and learns to express itself understandingly in regard to the objects which it represents.

Here and there a suitable story or a song should be interwoven.

What other general rules are there as regards the building or combination of forms?

1—The cubes of the Third Gift should always be introduced as *one whole cube.*

2—Care should be taken that the child is not allowed to develop a destructive tendency. Show proper displeasure when any form is willfully destroyed, and, especially, if no desire to re-arrange the blocks is apparent. Selfishness also, of every degree, must be promptly repressed at the outset, and the merited reproof must be given, if a child destroys the work of any of its playmates.

3—Lead the child to play methodically with the cubes. The law of intermediation and development should be inculcated, and caprice or arbitrariness should never be permitted.

4—In life we find no isolation. One part of the cube, therefore, must never be left apart from, or without relation to, the whole. The child will thus become accustomed to treat all things in life as bearing a certain relation to one another.

5—Begin with the *forms of life;* they stand in nearest relation to the child; pass, next, to the *forms of beauty,* and conclude with the *forms of knowledge.*

6—Sometimes do the building yourself, and let the child imitate. Performance and imitation, speech and repetition, are the elementary forms of education. As you do this, disclose to the child by degrees all the qualities of the cubes. Your play with the child must always be in the nature of transmissions and suggestions, which promote healthy growth rather than hasty cramming or grafting. You must not *envelop* the child, you must *develop* it.

7—The younger the child, the more desirable is it to chat and converse about the object which is next to be represented. Make also, here and there, instructive remarks. The more intelligent a child becomes, the more should this chatting merge in real descriptions, explanations, and observations.

8—After building, yourself, with the child, allow it to build at pleasure; only in this way can true freedom and free activity be developed.

9—From time to time tell some story which shall relate especially to, and contain mention of, such objects as have been built. Let representations which have been carelessly or untidily made, be omitted from such stories, and let the children see *why* they are unnoticed.

10—Remind the children of their carelessness, but always in a gentle manner, when work is untidily performed.

11—Let the child, if possible, correct its own mistakes, and do not touch its work anywhere. What a child *can* do of itself, no other person should do for it.

12—Sometimes allow one child to build a form, and the rest to imitate.

13—When all the children unite in building a form, the kindergartner should be the architect, and the children her assistants.

14—Occasionally set the children a certain task, as, for example: "build a house," or "a well," etc.

15—The Third and Fourth Gifts may sometimes be used together in building, or, later on, the Third and Fifth, the Fourth and Sixth Gifts, etc.

16—Never allow a child to take even a small cube from its playmate to use on its own building.

17—When the play is over, the child must place the cubes neatly in the box.

Are there any other cubes besides those of the Third Gift used in the kindergarten?

There are, in all, four distinct and differently constructed cubes, known as the Third, Fourth, Fifth, and Sixth Gifts. They are ranged in their construction according to pedagogical laws, from easy to difficult, from the simpler to the more complicated, from few to many parts, etc.

There are some objects, constructed with the material of this Gift, which cannot be represented by building up the blocks, and young children, especially, incline naturally towards forming objects by connecting the blocks on the plane of the table, as is done in the forms of beauty. In this manner the following forms are represented :

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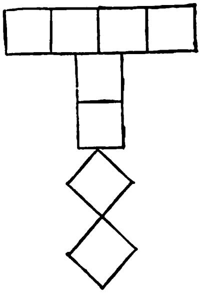

Cork-screw.

101.

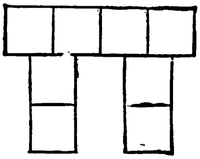

Table.

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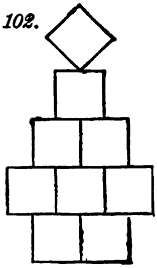

Bottle.

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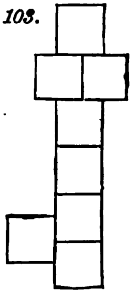

Latch-key.

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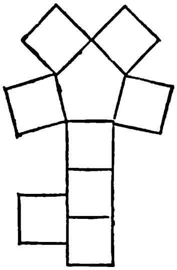

Key.

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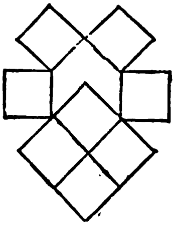
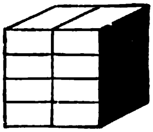


Padlock.

THE FOURTH GIFT.

What is the Fourth Gift?

1.



The Fourth Gift is a cube divided into eight blocks, each two inches long, one inch wide (broad), half an inch thick (high).

How is this cube divided?

It is divided from the top vertically into two equal parts, and then three times horizontally into four equal parts, thus making in all eight equal parts.

Wherein lies the contrast with the Third Gift?

In the form of the parts. The surfaces of the eight cubes of the Third Gift were all equal, while those of the parts of the Fourth Gift, which may, from a similarity in shape, be termed bricks, are unequal; the surfaces of the cubes were squares; the surfaces of the bricks are parallelograms. The edges of the cubes were of equal length, those of the bricks are, as regards thickness, breadth, and length, in regular geometrical proportion, as 1 : 2 : 4. Whilst, in building, the cubes only filled space, the bricks may either fill the space entirely, or enclose it. If one of the small cubes of the Third Gift is compared with one of the parallelograms of the Fourth, it will be found to be one-half as long, just as wide, and twice as thick as the brick. Two cubes united and two bricks are of equal form and size, therefore it is not difficult to understand that, though unlike in form, one cube and one brick are the same in their solid contents.

How are these two Gifts alike?

They are alike in bulk, in the number and heaviness of their parts, and in their square forms and angles.

What forms the point of general agreement?

Two cubes of the Third Gift united form an oblong which has equal length and width with one brick of the Fourth Gift, and equal height and width with one cube of the Third Gift. The similarity, also, exists in this,—that both Gifts, when entire, form cubes of equal size.

How is this Gift introduced?

The children invert their boxes, draw out the lids, raise the box, and disclose the cube.

What is there in these bricks that is new to the children?

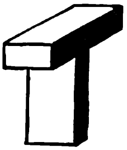
By placing the bricks on the broad side, on the long, narrow side, or upright on either end, a greater variety of forms may be produced than with the cubes.

What kind of forms can be made?

As in all Frœbel's Gifts and Occupations, these forms are of a threefold kind: forms of *knowledge*, forms of *life*, and forms of *beauty* or *symmetry*.

What natural laws are apparent?

The law of equilibrium and of continuous motion; the former, by balancing a brick with its largest side on the smaller side of another, and the latter, by placing all the bricks at short distances behind one another, on end, so that, if the first or last one falls, all the rest are necessarily thrown down.



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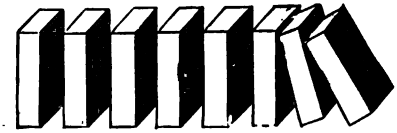

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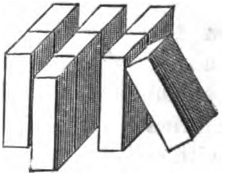

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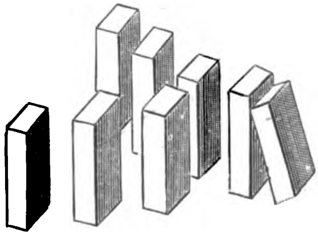

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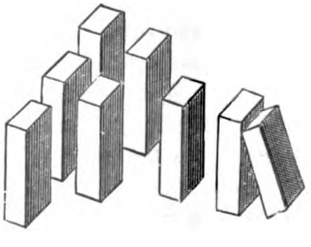

6.

May the children be allowed to build as they please?

Yes, and in a twofold manner: to build with the eight bricks, and in combination with the Third Gift. Care should be taken that the child does not play thoughtlessly, and it is the office of the kindergartner to show the child, by degrees, the systematic course of developing one form from another. The principal condition and aim in all the Gifts and Occupations is, to employ the entire material usefully, and never to allow any thing to remain unnoticed. The Fourth Gift is destined, even more than the Third, to lead the child to a true knowledge of form and of number, inasmuch as the whole appears as a cube, the parts as planes.

What is the object of this Gift?

The great object is to lead the child on to further development. On minute observation it will be seen that, though there is resemblance between this and the preceding Gift, there is also an important difference not only in the parts but in their application, and in the fact that children who have used both Gifts, always prefer the bricks to the cubes of the Third Gift,—a proof that the former assist in the progress of their development.

What are the first exercises with this Gift?

Let the Fourth Gift be shown to the children together with the Third. They will observe that the boxes are exactly of the same size. The question may then be asked: "How is the cube of the Third Gift divided?" The answer will be: "Into eight cubes." Next ask: "Are these cubes like the large one (the box)?" The children will answer that the smaller cubes are of the same shape, and have just as many sides, edges, and equal corners.

Now, have the children open the box of the Fourth Gift, and let these questions and answers follow:

"What do you see?"

"A cube that is divided (or cut up)."

"Are the cuts like those in the other cube?"

"No, they are not."

"What is the difference?"

"This cube is cut through the middle one way, but not also the other way, as the other cube is."

"Turn the cube up on its side; now, how is it divided?"

"By seven cuts." (This is, however, only apparently so to the child's eye, by reason of the cut across from the other side.)

"How many pieces does that make?"

"It makes eight pieces."

"How many small cubes are there in the other box?"

"There are eight small cubes in the other box."

"What is the difference then?"

"The ones in this box are longer than the cubes, but are not so thick."

"How many does it take to make the same thickness as the cube? Place a cube by the side, and then tell me."

"It takes two."

"Now, put them all in a row; what do all these blocks look like?"

"They look like bricks."

"Yes, we will call them bricks. Now, how much longer are they than the cubes? Place some cubes by the side of the bricks, and then you can tell."

"The bricks are twice as long as the cubes."

"What is the shape of the cube?"

"The shape of the cube is square."

"Are these bricks square?"

"No, they are too long."

"Well, this shape is called oblong; can you remember this word? Oblong means longer one way than the other, so any thing that has square corners, and is longer one way than the other, is oblong. Do you see any thing in this room that is oblong?"

"Yes, we see tables, windows, window-panes, doors, picture-frames, books, book-shelves, boxes, which are oblong."

"What square things do you see in the room?"

(Let the children look for these, and tell what they find.)

"Which do you think the prettiest shape—square or oblong?"

(The children will, undoubtedly, answer:) "Oblong."

"How many squares on the table can you shut in by placing the cubes closely around them?"

"Four."

"How many squares can you shut in by placing the oblong bricks round them?"

"Sixteen."

"How many squares on the table can be covered by one, two, three, etc. (up to eight) cubes?"

(Let the children find out for each number.)

"How many can be covered by one, two, three, etc. (up to eight) bricks?"

(Let the children find this out also.)

(The different proportions or dimensions of the brick may be illustrated in the kindergarten by saying:) "Lay the brick flat, so that it is stretched out, and is not high. Can *you* lie down so?"

"Now stand the brick up straight, on its end. Can *you* stand up so?"

"What do you do when you neither lie down nor stand up?'

"We sit."

"Well, can you place the brick so that it neither lies flat nor stands up?"

"Yes, we make it sit by putting it, on its long, narrow side."

These directions as to "sitting," "laying," and "standing" should be used repeatedly, while directing the children at their work. The bricks may be laid on the table, so as to cover the greatest amount of surface, next, they may be made to sit up with the same purpose, and, next, to stand on end. By proper combinations, seats and tables may be made in endless variety, and little stories or an occasional song may accompany the exercise, concluding with a conversation on the different kinds of seats and tables, what they are made of, what they are used for, etc., etc.

In what way can language and memory be exercised?

By leading the child, first, to say who made the blocks; what they are made of; what other things are made of wood; where the wood comes from; of the different kinds of trees; of the tree itself, its parts, etc., etc. The great object of these games is to gratify the desire for further development, and it should always be borne in mind that this can be accomplished only by leading the children *step by step*, never allowing them a second step, before they are well acquainted with the first.

How are the forms of knowledge developed?

1—Form a solid cube, by placing the parts one upon the other in two rows.

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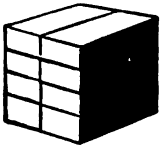

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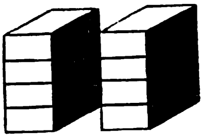

2—Divide this, right and left, into two halves.

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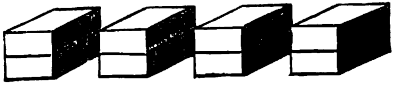

3—Divide each half equally, so as to gain four quarters.

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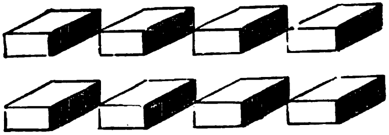

4—Divide each quarter again, so as to get eight eighths.

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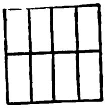

5—Move all these bricks together, so that they will make a square and cover the greatest amount of surface.

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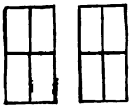

6—Separate them, right and left, into two equal parts.

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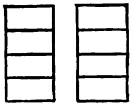

7—Unite them again, and separate the square, up and down, into two rows.

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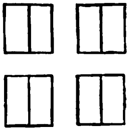

8—Divide each part, again, into two equal parts.

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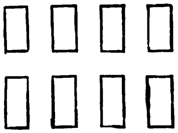

9—Divide each part again, and place them at equal distances, representing blocks of stone, for buildings.

10—Place each brick on its long, narrow side.

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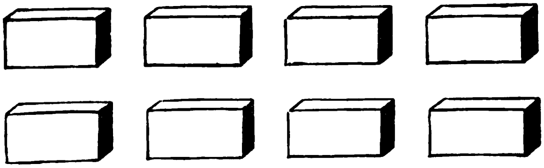

11—Place them together, by pairs, either one upon the other, or end to end.

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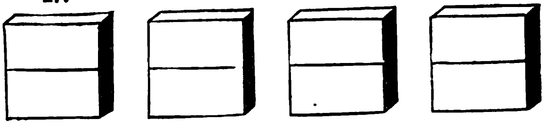

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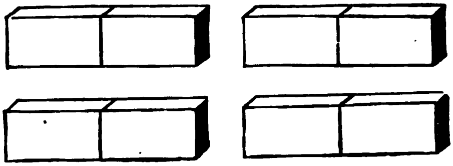

12—Place two parts together, either one part upon the other, or touching at the short sides.

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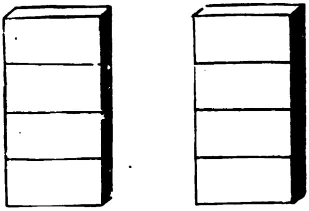

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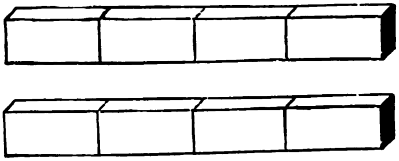

13—Unite both parts either at the ends, or one upon the other, and the long, or the high, wall is made.

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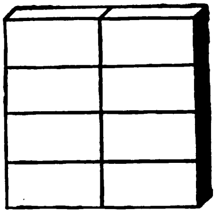

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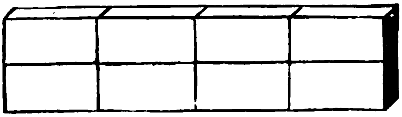

14—Stand the bricks on end, with the narrow sides touching each other, and another kind of wall is seen.

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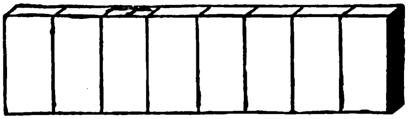
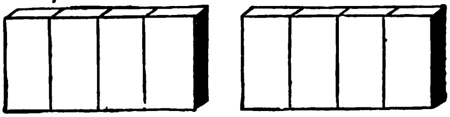


15—Divide this wall into two equal parts.

24.



16—Divide each part again, equally.

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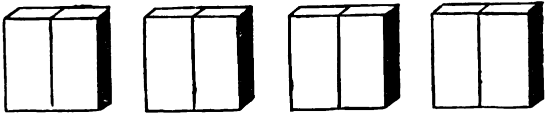

17—Divide each part yet again, and once more the eight bricks, or building-stones, are produced.

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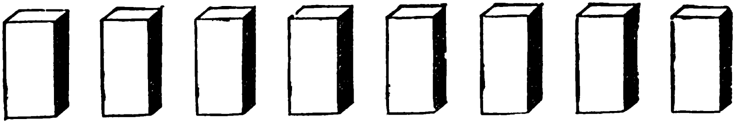
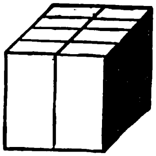


Presently let the children form the cube, by standing the bricks on the short ends, and lead them gradually to divide the cube as follows:

1—One whole—two halves; two halves—one whole.

27.



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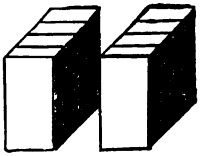

2—One whole—two halves; one half—two quarters, one half—two quarters; in all four quarters.

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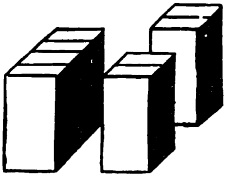

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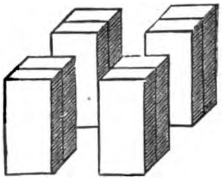
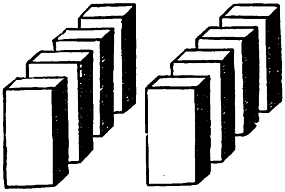


Four quarters—one whole; two quarters—one half, two quarters—one half; two halves in all. Two halves—one whole.

3—One whole — two halves; one half—two quarters, one half—two quarters; four quarters in all.

One quarter—two eighths, one quarter — two eighths, one quarter — two eighths, one quarter—two eighths; in all eight eighths.

31.

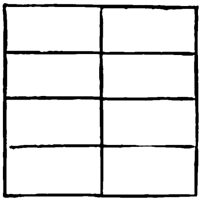


The eight eighths are then returned into quarters, the quarters into halves, and the halves into one whole.

Now, let the child observe that each brick has eight corners, six sides, and twelve edges; that the sides differ in size, two being so long and broad that it takes two cubes of the Third Gift to cover them; and that two sides are as long as two of the cubes, but only half as wide, and two sides are as long as one cube, and only half as wide. The three dimensions, length, breadth, and thickness, are alike present in each Gift; but in the cube they are equal, whereas the brick of the Fourth Gift is twice as long as it is broad, and twice as broad as it is thick, each side having an oblong form instead of a square surface as in the cube.

Ask the following questions, and let the child demonstrate its answers:

32.



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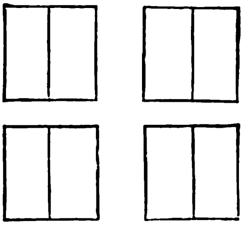

"How many squares can you make with the eight bricks?"

"One large square, or four small ones."

"How many oblongs?"

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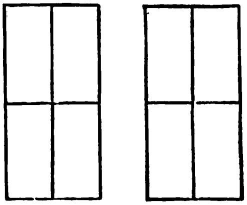

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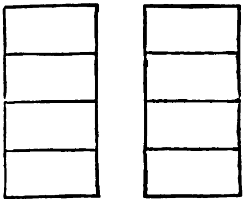
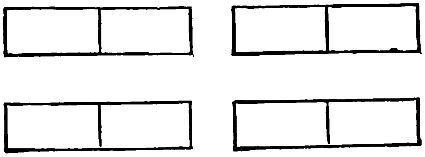


"Two oblongs up and down, or two from right to left;
four up and down,

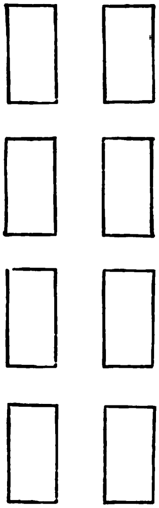
or four from right to left;

36.



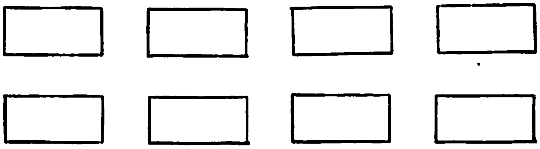
eight up and down,

37.



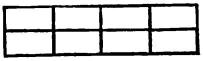
or eight from right to left.

38.



One up and down, one from right to left; and one oblong up and down, and one from right to left."

39.



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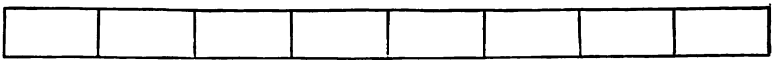
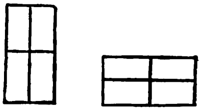


"How many squares and oblongs can be made with the eight bricks at the same time?"

"One oblong and two squares."—etc.

41.



How may instruction in numbers be given?

The children have each a brick of the Fourth Gift. They are told to place *one* brick before them, and one of them, passing round, says, pointing to each brick: "One brick,—two bricks,—three bricks,—four bricks," etc., until every brick has been counted; then the child counts backwards again.

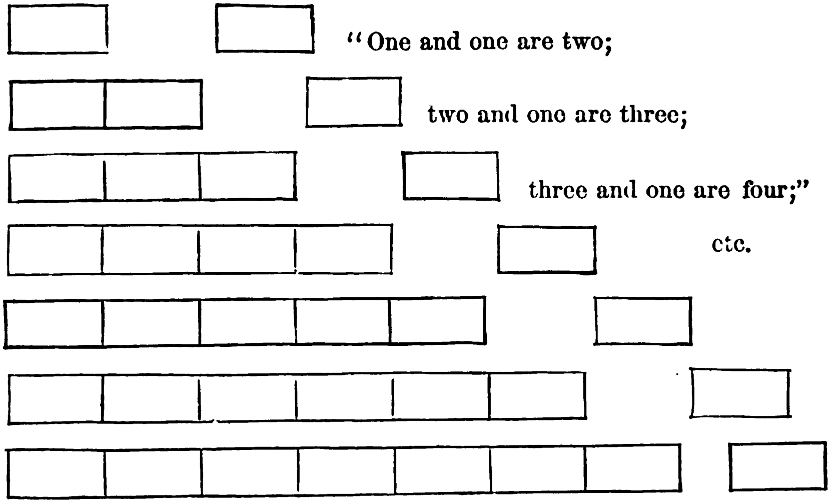
Next, two bricks are taken by each child, and then these are counted, at first, singly (always laying stress an the second number), "one, *two*, three, *four*, five, *six*, seven, *eight*," etc., and then in pairs: "two, four, six, eight, ten," etc., and, if possible, backwards.

Three bricks are next placed before each child, and the counting begins again: "One, two, *three*; four, five, *six*; seven, eight, *nine*," etc., laying the stress on the third number. After that count by threes: "Three, six, nine, twelve, fifteen," etc.

Try this next with four bricks, and so on.

Let the child count:

42.



"One and one are two;

two and one are three;

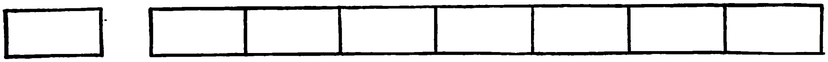
three and one are four;"

etc.

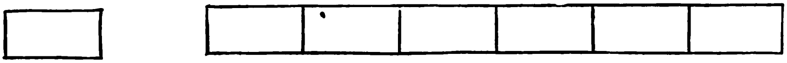
Then reverse the order:

43.

"Eight less one is seven;

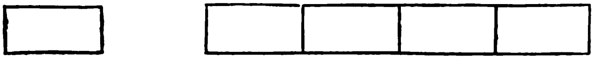


seven less one is six;



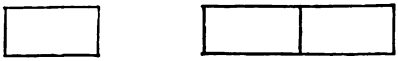
six less one is five:

five less one is four;



four less one is three;

three less one is two;



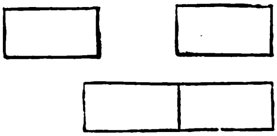
two less one is one."

A lesson in multiplication may be given by telling the child to place two separate bricks before it, and saying:

"Two *ones* are one *two*" (joining the two bricks).

Separate them, add another brick, and say: "Three *ones* are (pushing them together) one *three*," etc.

44.



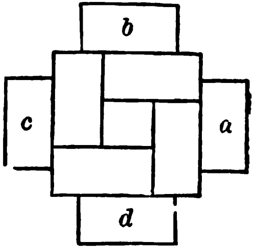
Division is easily taught by saying, for example, after having joined three bricks together, "in *one three* are *three ones*" (separating them), etc.

Each number should always be well mastered before proceeding to the next higher one.

In what manner are the exercises which teach the form of beauty, performed?

Repeatedly, until each child can itself do them correctly, noticing always what position the bricks are to take in relation to one another, whether side by side, side to corner, corner to corner, corner to side; whether the movement is toward the left or the right, forward or backward, as, for instance: Have a central hollow square formed by four bricks; place the other four, which may be represented by *a*, *b*, *c*, and *d*, with their longest faces touching the square at the centre of each side.

45.



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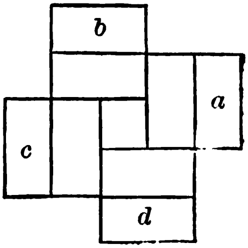
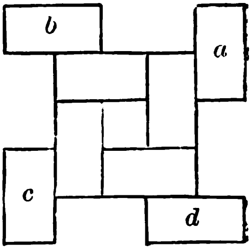


Place *a* on the right side of the central square, *c* on the left side, *b*, at the upper end, and *d* at the lower. Move *a* upwards to the first corner, *c* downwards to the first corner, *b* to the upper left-hand corner, and *d* to the lower right-hand corner. These movements give a "turning figure."

47.



All forms, constructed similarly to the above, are called, in the kindergarten, "turning figures"; such a one as just described, the child will, probably, compare to a mill-wheel, or a windmill. Now, move *a* one square's width upwards, *c* the same distance downwards, *b* a square to the left, and *d* a square to the right, and the "turning figure" will be seen more distinctly.

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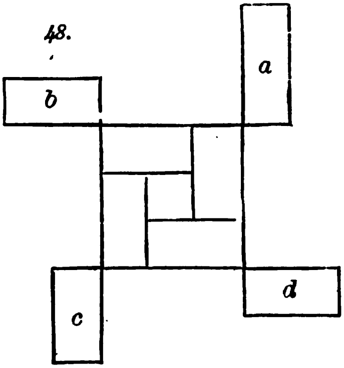
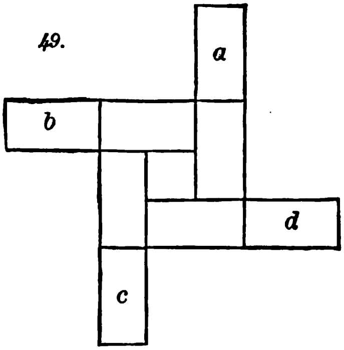
48.



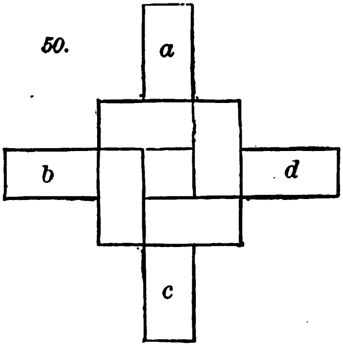
Move *a* another square inch upwards, so that the lower left-hand corner of the brick will touch the upper right-hand corner of the central quare, move *c* the same distance downwards, *b* towards the left, and *d* towards the right.

49.



Move *a* one inch, again, towards the left, so that its shorter end touches the upper right-hand side of the central square, move *c* in the same manner towards the right, *b* downwards, and *d* upwards on the right-hand side.

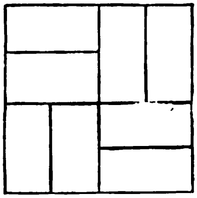
50.



Next, move *a* towards the centre of the upper side, *c* towards the centre of the lower side, *b* towards the centre of the left, and *d* towards the centre of the right-hand side, so that the four bricks touch, with their shorter ends, the central square at the middle of each of its sides.

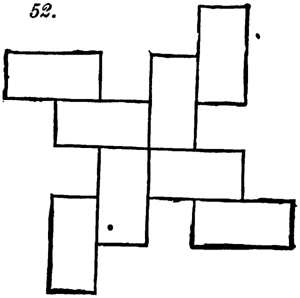
Continue this movement until the four bricks, *a*, *b*, *c*, and *d*, are returned to their first positions, or starting-points. The central form, composed of four of the bricks, may, of course, be varied, and will give the character to the form, whilst the other four bricks are moved methodically around the central figure.

51.



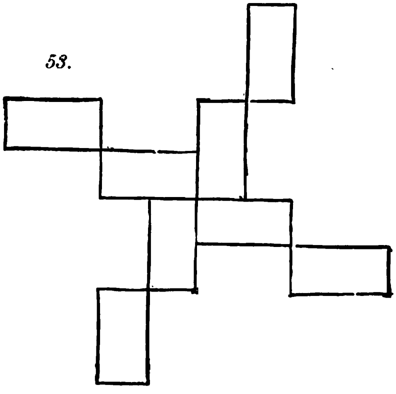
Let each two bricks form a separate square, and these four squares join so as to form one large one; thus, the bricks of the upper right-hand and lower left-hand squares are placed vertically, and those of the upper left-hand and lower right-hand squares are placed horizontally.

52.



Move the brick on the upper right-hand side one square upwards, the one on the lower left-hand side a square downwards, the brick on the upper left-hand side an inch towards the left, and the one on the lower right-hand side an inch to the right.

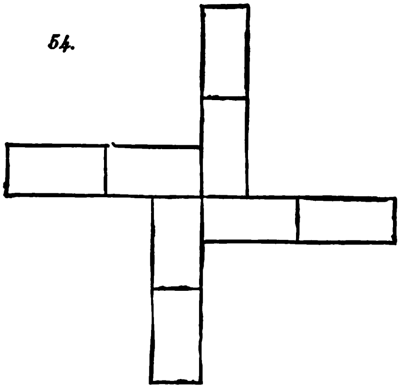
53.



Move the brick on the upper right-hand side an inch again upwards, the one on the lower left-hand side an inch downwards, and the upper left-hand and lower right-hand ones each an inch towards the left and right, respectively.

Thus continue moving the four bricks around the central form until they reach their original position again.

54.



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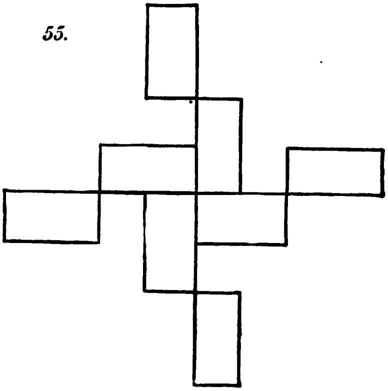

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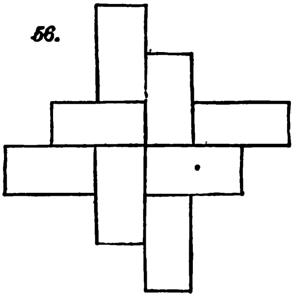

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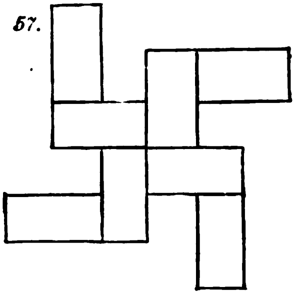

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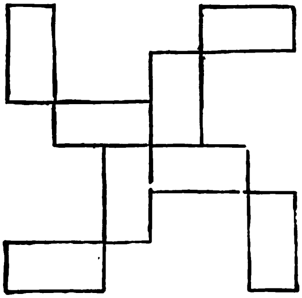

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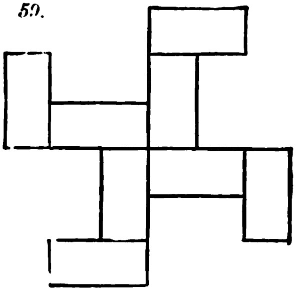

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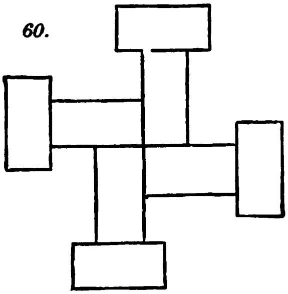

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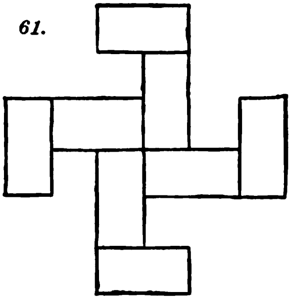

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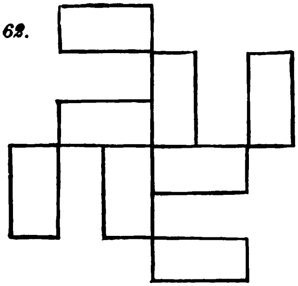

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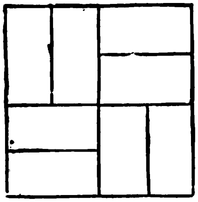
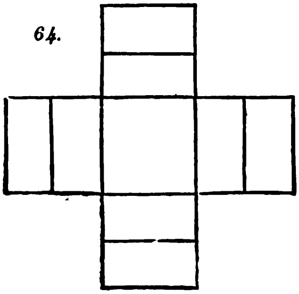


Another centre may be formed by placing four bricks flat on the table, enclosing the space of a square of four square inches, with the other four bricks either with their long sides or their ends touching the central bricks.

64.



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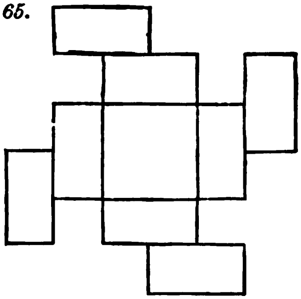

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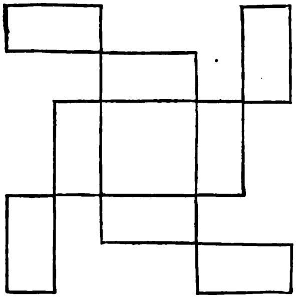

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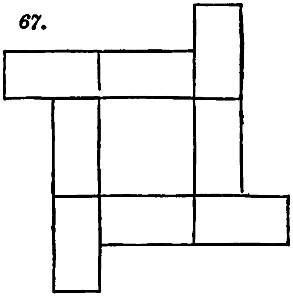

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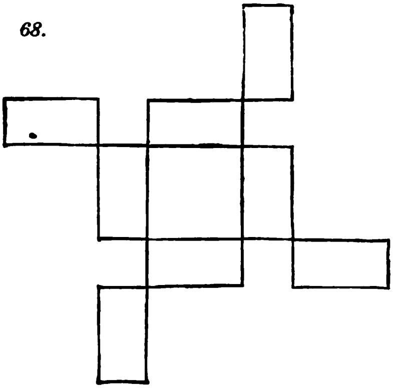

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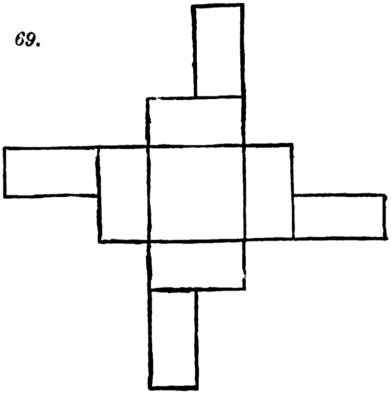

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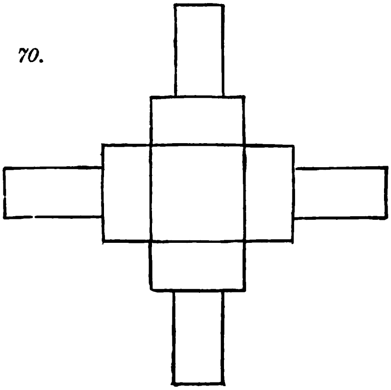
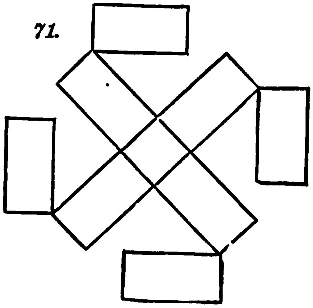


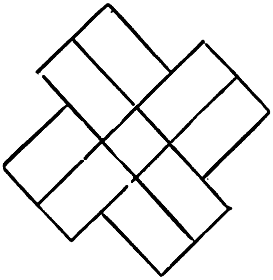
A different one, still, may be made by placing the four bricks end to end, so as to enclose only one square inch, the other four to be placed symmetrically around.

71.



The movements of the outer bricks may be either to the right or to the left.

72.



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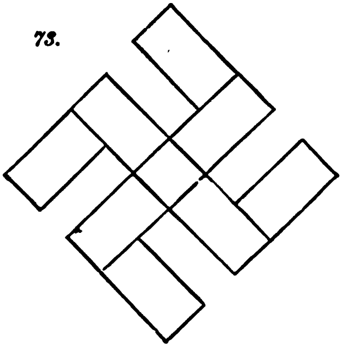

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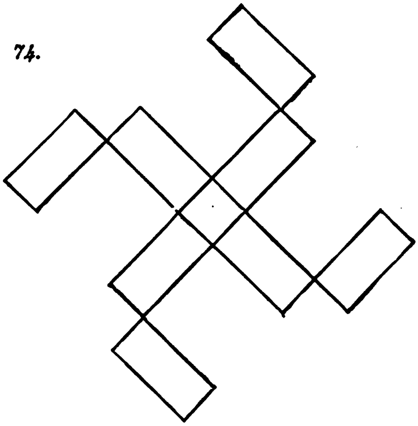

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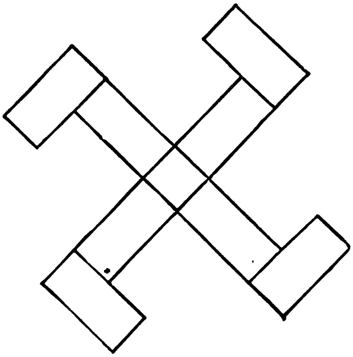

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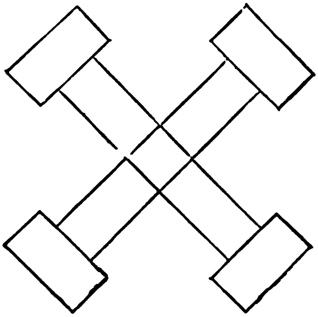

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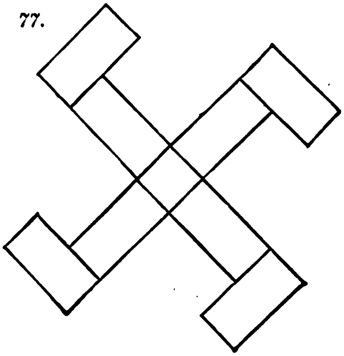

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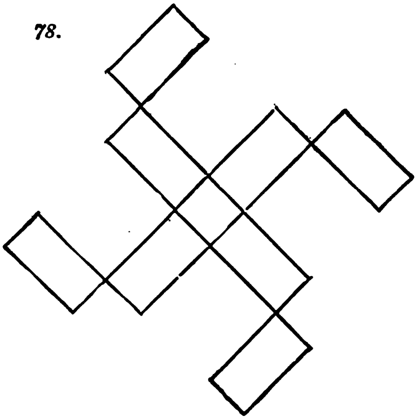

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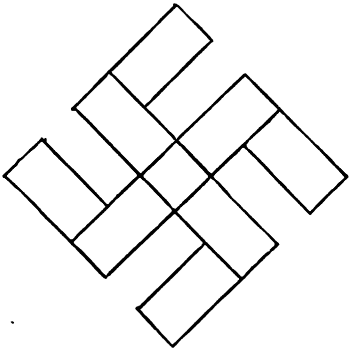

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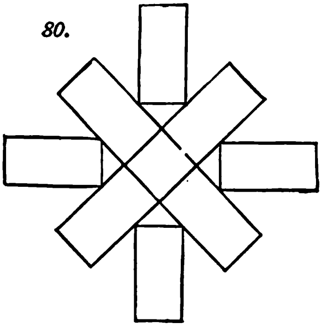
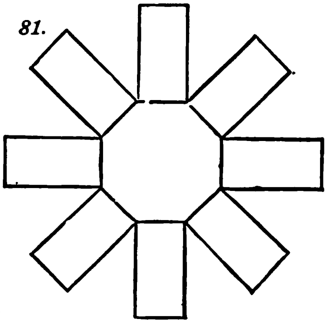


81.



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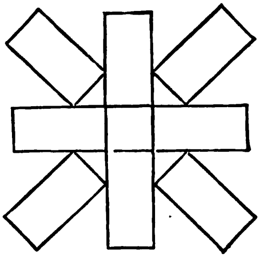

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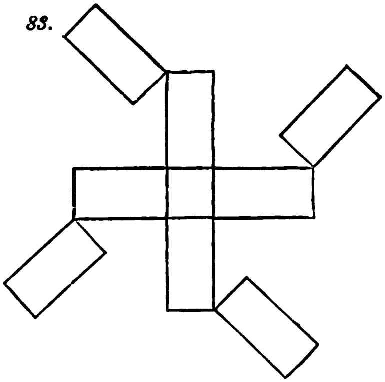

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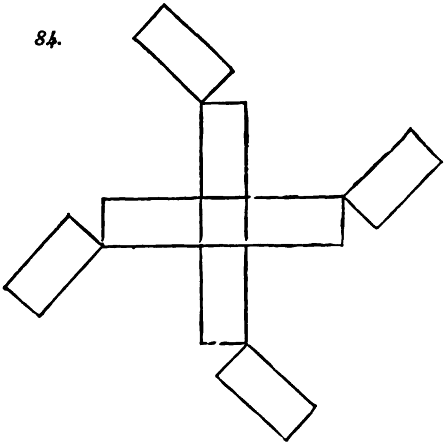

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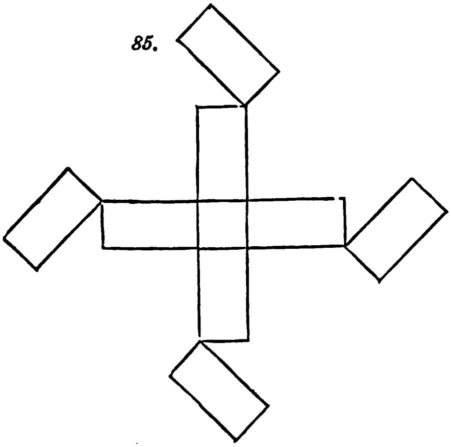

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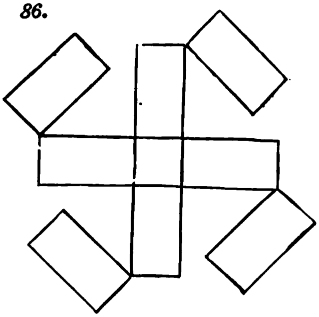

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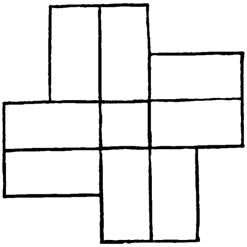

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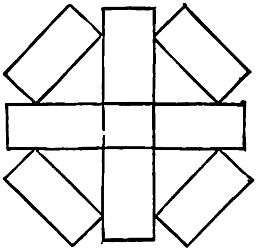

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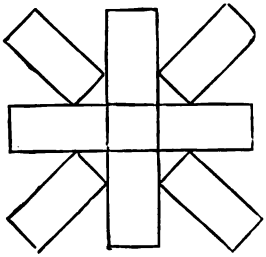

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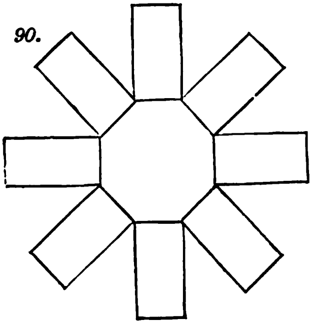

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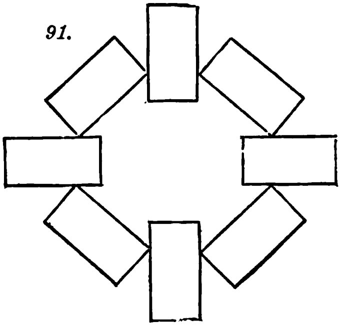

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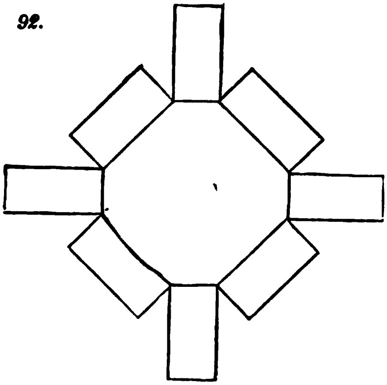
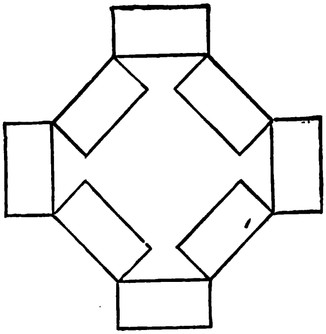
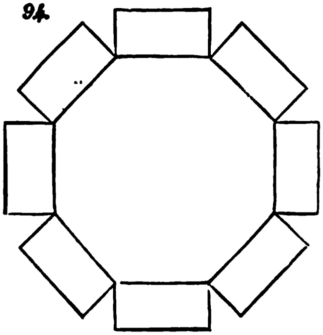


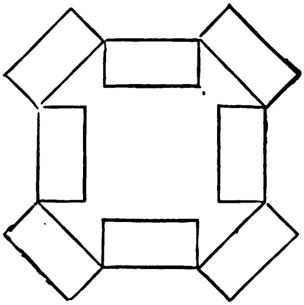
93.



94.



95.



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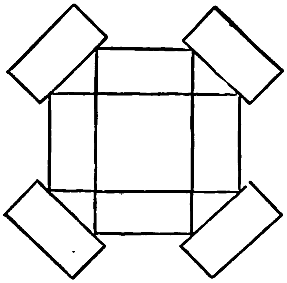

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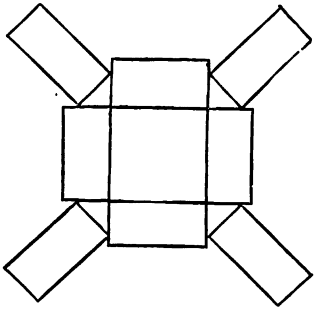


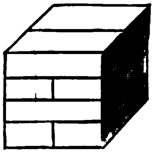
Variety may again be given by placing the bricks either on their long, narrow side, or on end. The child will soon learn that by these simple movements new and beautiful forms can always be constructed.

How should the forms of life be developed?

By even the slightest change in form, a new object may be produced from the previous one. Thus, for instance, the high wall can be made from the low one simply by dividing the former into two equal parts, and placing one upon the other. Or, two chairs and two tables may easily be changed into one large chair and table by pushing them together, and "grandpapa" may be supposed to sit in the big chair, telling the children a story, whilst papa and mamma are busy at the table, or are listening to the story. In this manner—for children always love every thing connected with their home, their parents, and their relatives—may family ties and relations be impressed upon the young mind.

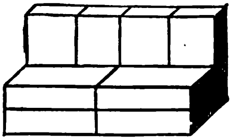
There are different courses to be followed, by which, starting from the cube, the various forms and objects are methodically developed until the cube is reached again. We give here but one of such courses:

98.



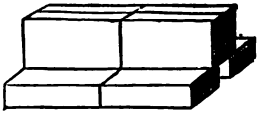
Cube.

99.



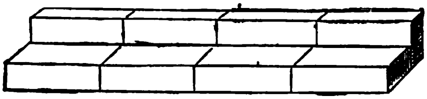
Bench.

100.



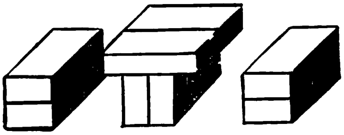
Double seat.

101.



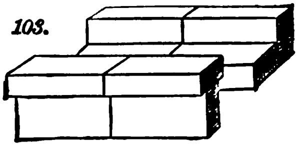
Long seat.

102.



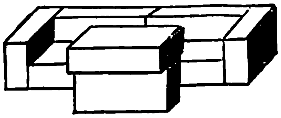
Two seats and table.

103.



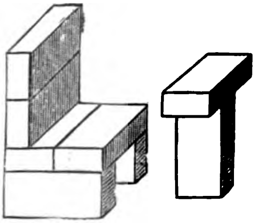
Sofa and long table.

104.



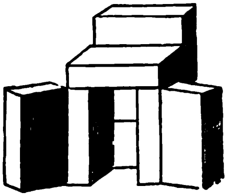
Sofa and small table.

105.



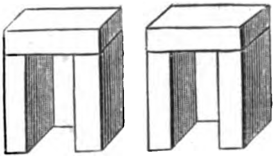
Chair and table.

106.



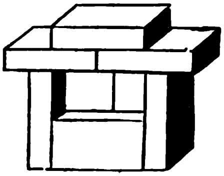
Ice-box with folding-doors.

107.



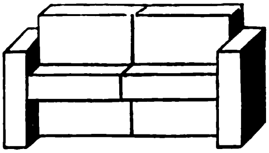
Two summer-houses.

108.



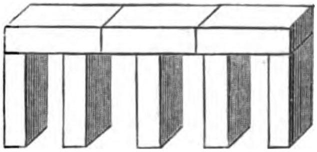
Arbor with seat.

109.



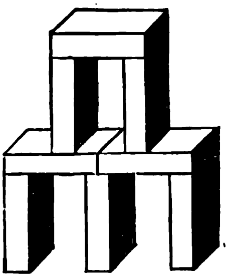
Garden-bench.

110.



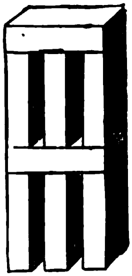
Bridge.

111.



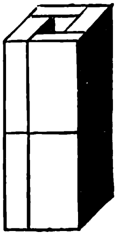
House.

112.



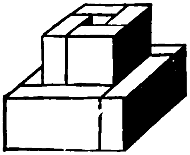
House.

113.



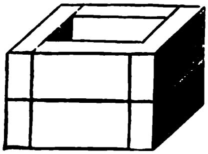
Chimney.

114.



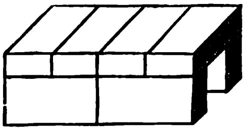
Well.

115.



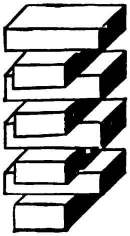
Dog's kennel.

116.



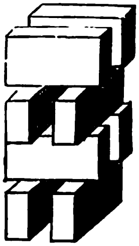
Shed.

117.



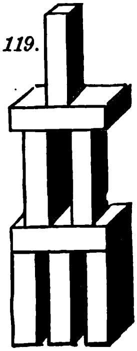
A pile of lumber.

118.



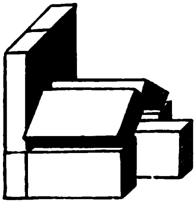
Bars of soap.

119.



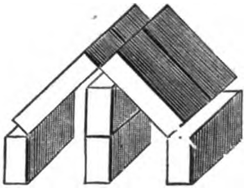
Monument.

120.



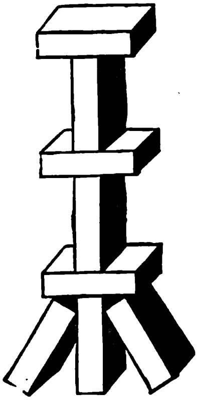
House.

121.



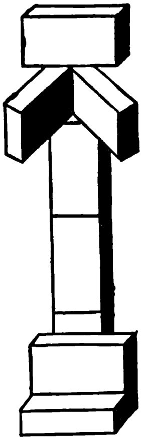
House.

122.



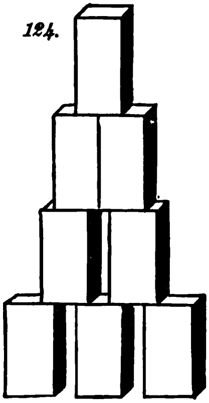
Perch.

123.



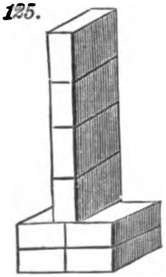
Guide-post.

124.



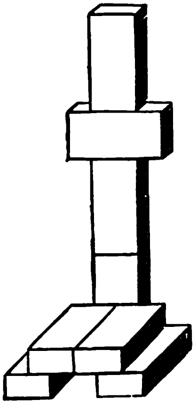
Monument.

125.



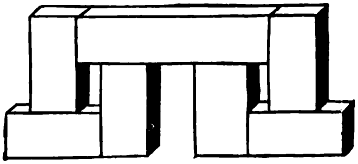
Monument.

126.



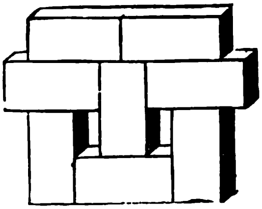
Monument.

127.



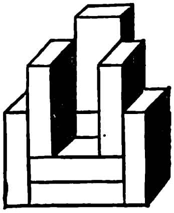
Park-gate.

128.



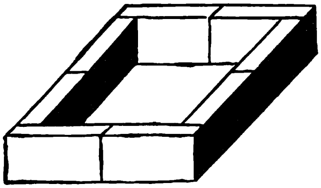
Monument.

129.



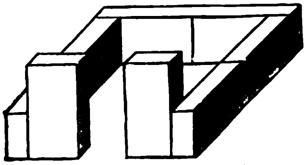
Throne.

130.



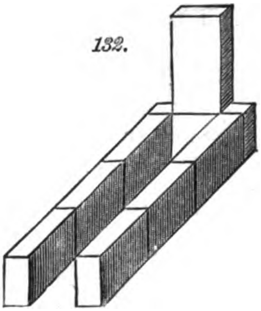
Court-yard.

131.



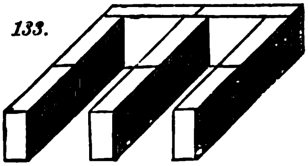
Riding-school.

132.



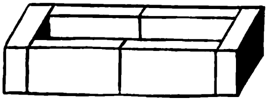
Shooting-gallery.

133.



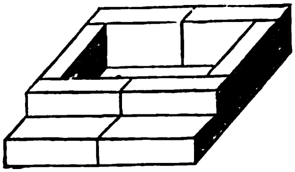
Stables.

134.



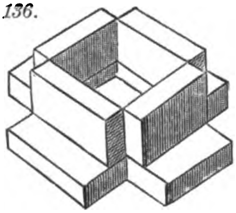
Bath.

135.



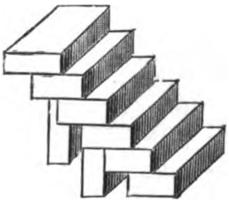
Bath with steps.

136.



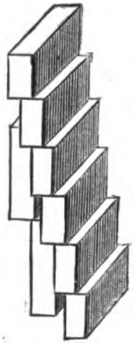
Well with four steps.

137.



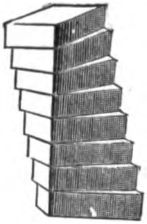
Staircase.

138.



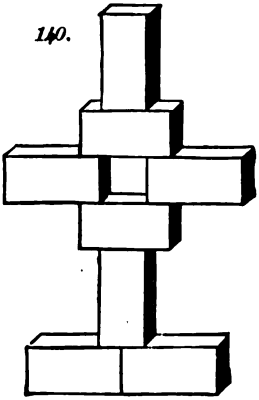
Step-ladder

139.



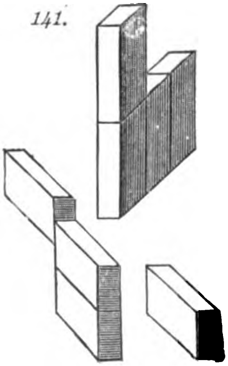
Winding staircase.

140.



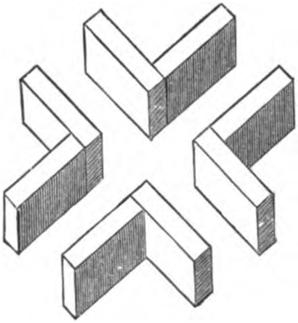
Cross.

141.



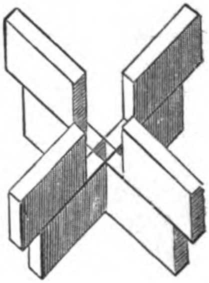
Church and houses.

142.



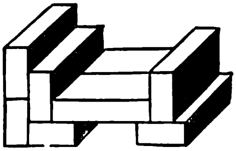
Street-crossing.

143.



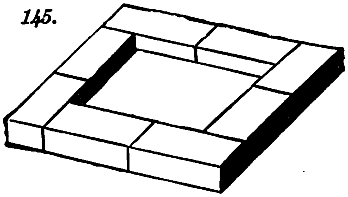
Carrousel.

144.



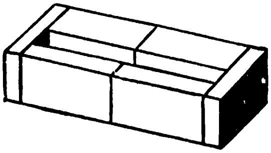
Bedstead.

145.



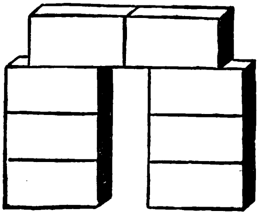
Frame of a slate.

146.



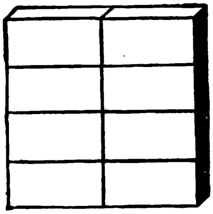
Trough.

147.



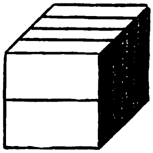
Park-gate.

148.



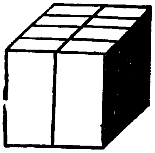
High wall.

149.



Cube.

150.



Cube.

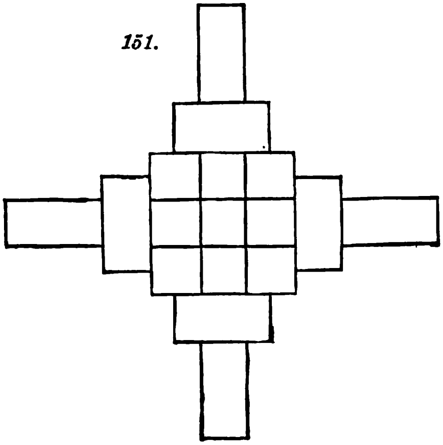
Is it advisable to allow the children to build in union?

It is the duty of parents and teachers to develop freely each child's individuality. But it must also be borne in mind that man is a social being, and cannot be properly educated without the assistance and co-operation of his fellow-beings. This is more directly furthered by communion of action than by words, and kindly feelings are more successfully fostered and strengthened in children by some game or play in which all join in common, than by moral precepts or solitary lessons. This end is promoted in the kindergarten through *building in union*, as soon as the children can do so, and this exercise can best conclude the lesson. As for instance: one child builds the wall of a town, another the church, another a monument, another the town-hall, another the railway station, others houses, streets, etc. Such training in harmonious action gives a direction to the mind of the child which will, in great measure, shape and determine its future. Individual and concerted action alike bring out the creative powers, develop the faculties, and give the children confidence and self-reliance, while developing their characters as social beings who have enjoyments and interests in common with each other and with all mankind. The same rules as given for building in the Third Gift, should be applied to the Fourth.

When are the Third and Fourth Gifts used together?

After each Gift has been used separately, they should be given together to the children, who are thus led to closer observation and comparison between the cubes of the Third Gift and the oblong bricks of the Fourth. The child should be led to reflect more than ever before, how the different kinds of material are most usefully applied, and this reflection may be made the link and stepping-stone between the Fourth and the Fifth Gifts. The Third and Fourth Gifts may be used, first, by placing the cubes below, and the bricks above, each one standing on end. Next, the child may divide this form into parallelopipedons (oblong pillars), by dividing it in equal parts (halves), front and back—or right and left; then divide the halves into quarters, etc. The children will experience no difficulty in finding forms with the two combined Gifts, which can be especially used for forms of *life* and forms of *beauty*. Children will, however, prefer, almost invariably, to produce the forms of *life*.

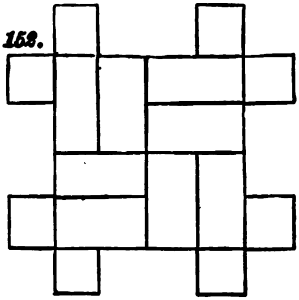
151.



In making the forms of *beauty*, these three rules should be followed:

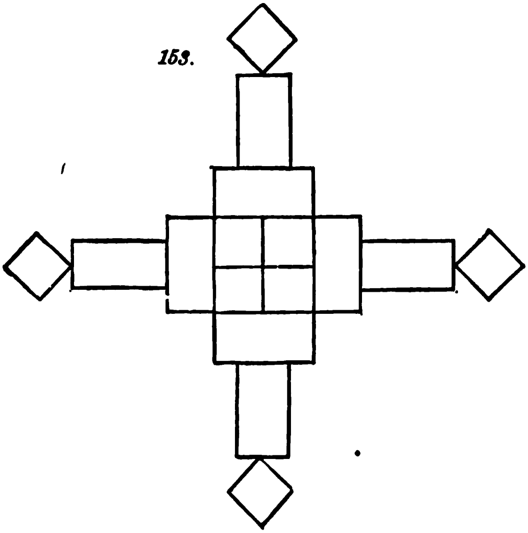
1—Arrange the central form with the cubes of the Third Gift. The bricks of the Fourth Gift should be arranged and moved methodically around this centre.

2—Or, the bricks of the Fourth Gift may constitute the central form, while the cubes of the Third Gift are arranged and moved methodically around it.



152.

3—Or, divide the parts of both Gifts, and use them equally for the central form and the outlaying attachments. The law of opposites is adhered to here as in the previous forms.

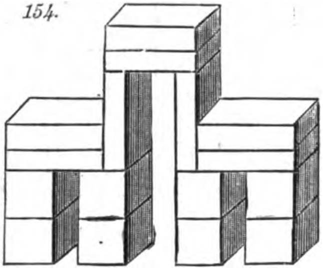


153.

The forms of *knowledge* are carried out similarly as in the Third and Fourth Gifts.

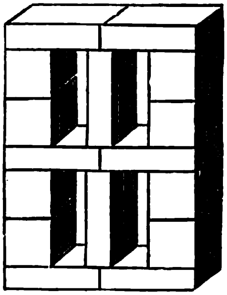
The following are a few of the forms of *life:*

154.



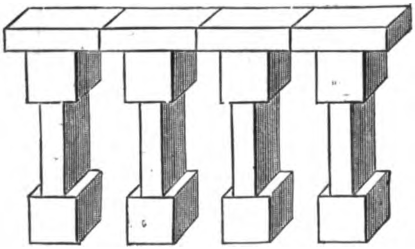
Gate.

155.



Four windows.

156.



Colonnade.

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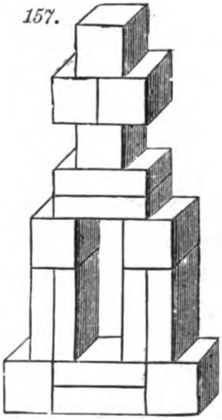
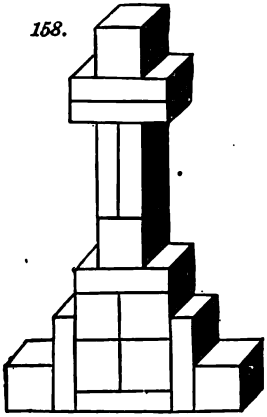


Altar cross.

158.



Cross.

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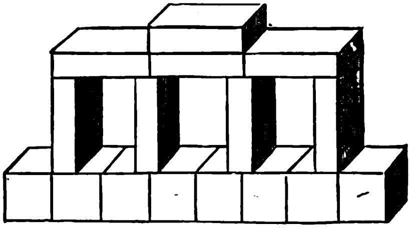
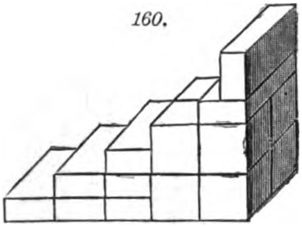


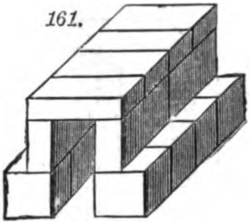
Gate.

160.



Stair-case.

161.



Tunnel.

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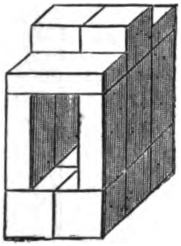

Room.

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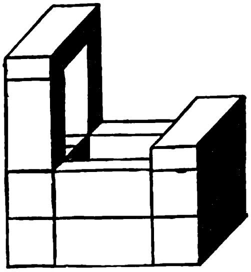
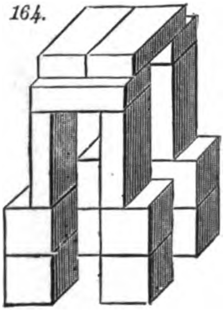


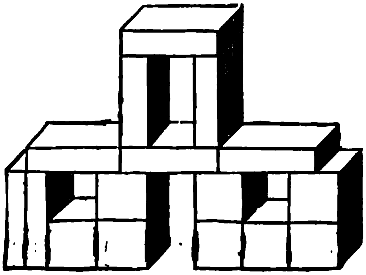
Well.

164.



Gate.

165.



House.

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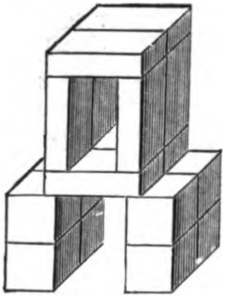
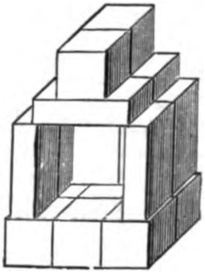


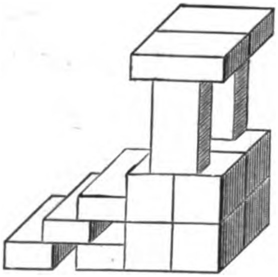
Gate.

167.



Newspaper-stand.

168.



Look-out.

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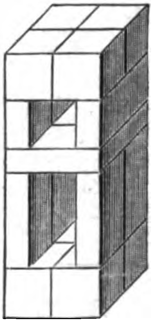
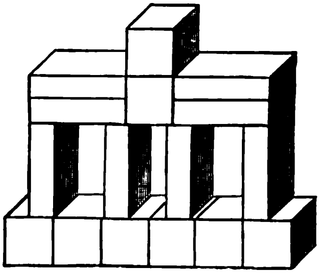


House.

170.



Villa.

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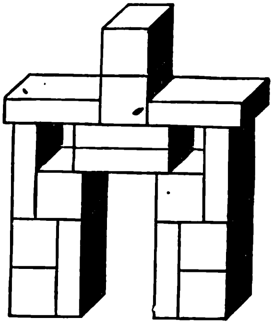
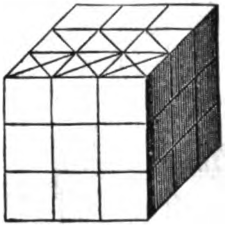


Gate.

THE FIFTH GIFT.

What is the Fifth Gift?



The Fifth Gift is an extension of the Third Gift. It is a cube divided twice in every direction, that is, into twenty-seven equal cubes, each cube being of the same size as those of the Third Gift. The number *three* is the first new feature that strikes us: three cubes in every direction added together produce the number twenty-seven. This is also the first cubic number after the number eight. The *greater number* however, of small cubes and the *larger size* of the whole cube do not constitute the only novelty of this Gift; another new element is the difference between some of the smaller cubes: *twenty-one* of them are solid, *three* are divided diagonally into halves, and *three* twice diagonally into quarters, making thirty-nine pieces in all.

How does this Gift differ from the Fourth?

It is divided oftener and in a different manner, and it develops the inclined plane, or slanting surface, the slanting line, and the acute angle (in this case half a right angle).

What kind of forms can be constructed with the Fifth Gift?

All the forms of the Third Gift may be repeated, and the children will soon perceive the increased facilities which the new Gift affords for building arches, bridges, churches, houses with roofs, etc. When the children have exhausted their own inventive powers for the time being, they may be led to build more complex forms, the kindergartner proposing a new form, and directing them *how* to build it, as was also done in the Third and Fourth Gifts; the children, are permitted, too, to *change* this form, when finished, into something else.

What process should be followed?

Before *the whole* cube is used, the single parts must be considered. Surfaces, edges, and corners of the different parts should be counted, and the angles observed. Experiments should be made as to how many different forms can be made by joining two halves,

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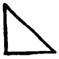

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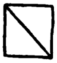

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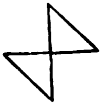

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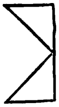

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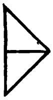

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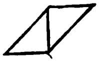

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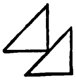
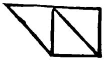


three halves,

9.



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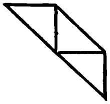

four halves, etc.

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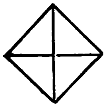

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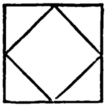

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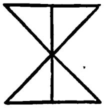

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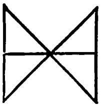

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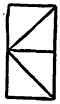

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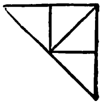

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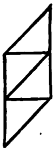

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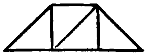

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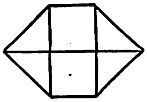

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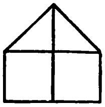

The same exercise can be gone through with the quarters—by counting and naming all the different parts, etc.

Different squares and triangles can be formed by combining *solid* and *dissected* cubes.

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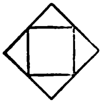

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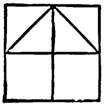

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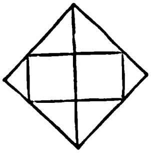

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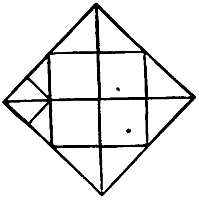

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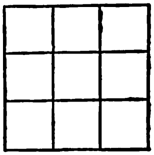

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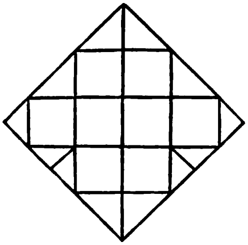

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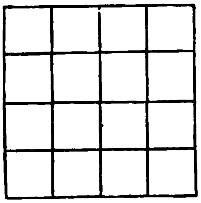

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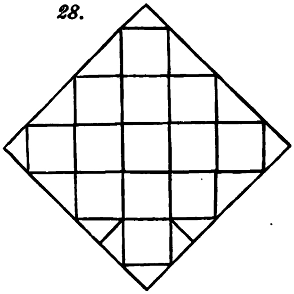

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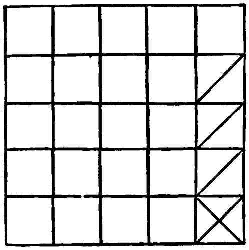

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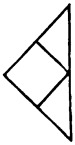

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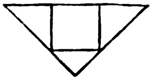

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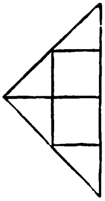

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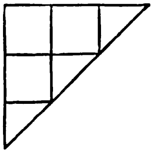

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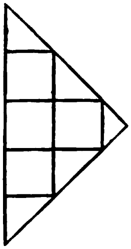

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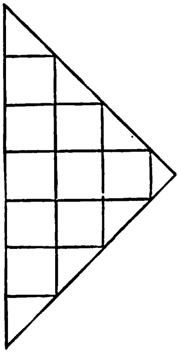

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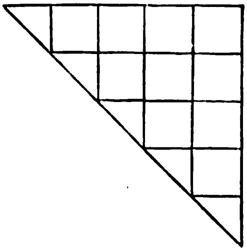

A comparison of cube and square should follow. The relation of the different parts to one another should, of course, be taken note of, for instance:

1—Two half-cubes make one whole cube;
2—Two half-cubes make one large triangle;
3—Two half-cubes make one rhomboid.

Similar exercises should be made with the quarter cubes, and with the quarter and whole cubes, as well as with the half and whole cubes, etc.

At the proper age children will not find it difficult to copy these forms on a slate, or in a checkered book, or even by modeling them in clay, an exercise highly to be recommended.

What kind of forms can be represented with this Gift?

1—Forms of *life*, that is, representations of objects which surround us.

2—Forms of *knowledge*, or *geometrical* forms;

3—Forms of *beauty*, or *symmetry*.

At what age should the Fifth Gift be given to the child?

The Fifth Gift should be given to no child under five years.

In what manner should the forms of life be introduced?

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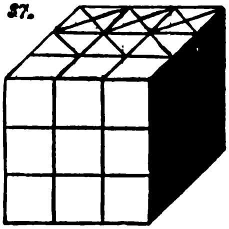
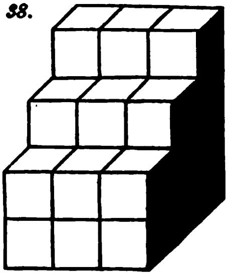


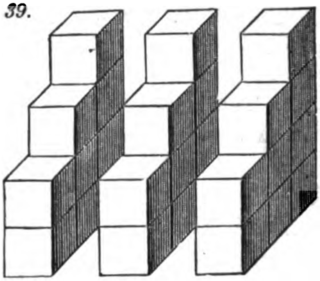
The whole cube represents a box, a table, a kitchen range, etc.

38.



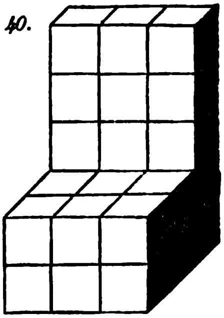
Take the three front top cubes, and place them upon the three back top cubes: this form may be called a stoop, a staircase, or a flower-stand, concerning all of which the mother or kindergartner should converse with the children.

39.



Divide this form right and left into three parts, and you have three narrow staircases.

40.



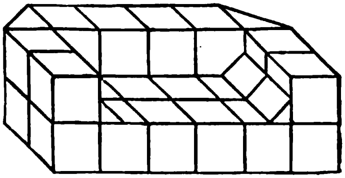
Join these again into a broad staircase, then take the middle step out, and place these three cubes on the top step; the form now represents a chair.

"Who can change this chair into three chairs?"

Join these three chairs again into one chair; change this chair again into the stoop, and this into the cube.

Another exercise is the following:

41.

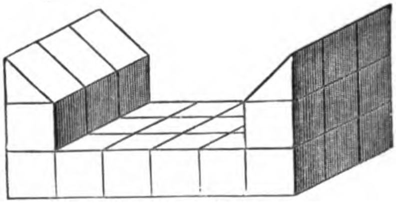


Take six whole cubes, and place them, touching on the sides, in a line from right to left. Take six more whole cubes, and place them just behind the first row of cubes. Then take four cubes, and place them in a line just behind the last row, so, that right and left of them the space of one cube is left empty. Take two half-cubes, and put them into the vacant places, with the right angle filling out the corner. Now place four more whole cubes upon the four cubes on the back, and two cubes each at the right and left side; and upon each of the half-cubes place another half-cube, thus filling up the corner above,—and the sofa is finished—while one cube is left; this should be one of those divided into four quarters, which will fit as cushions, in the corners, on both sides.

The sofa can be divided, so that, almost without change, one armchair and two or three small chairs are gained. The sofa can also be changed into a bedstead by the following transposition:

Take the entire first row of six cubes and move it towards yourself. Move a second row of six cubes up to it. Form a third row of six cubes, and push it gently up to the first two rows, forming thus an oblong of three by six cubes. Then place a row of three cubes each at the right and left side. Form two rows, each of three half-cubes, and place them upon the last two upper rows of cubes, so that the slanting surface is turned towards the inside—and the bedstead is finished.

42.



Divide the bedstead in the middle—right and left, and you have two small benches.

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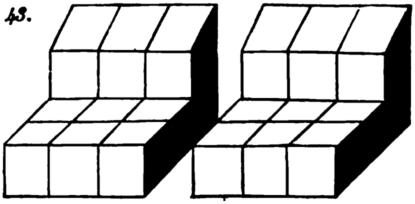

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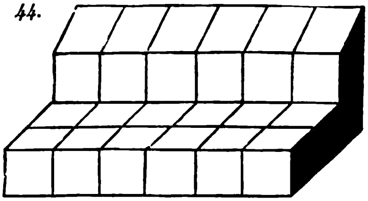
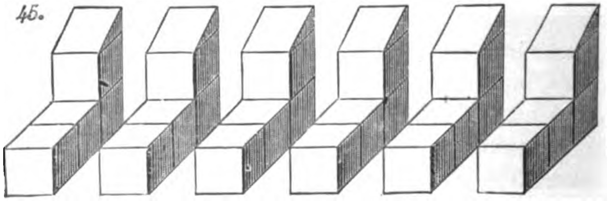


Join the two benches together by the sides, and you have one long bench.

45.



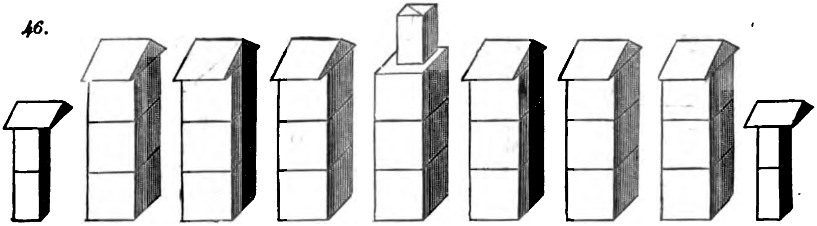
Divide this bench five times, and there are six chairs, etc.

What kind of forms of life are particularly prominent in this Gift?

Architectural forms, which come very near to reality on account of the prisms. These forms of life or utility are almost inexhaustible, and for their representation children may fairly be left to their own resources. One example may follow here:

Seven pillars, each three cubes high, should be arranged in one line, at one cube's distance from one another. Place upon the middle pillar a small pillar formed of two quarter cubes. Then place a square pillar, formed of four quarter pieces, at each side of the pillars, and one half-cube on each of the six remaining pillars, and the Park-gate is finished.

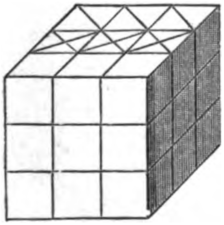
46.



An important rule is, that *all the pieces of the cube must be employed.*

Beautiful little houses, Swiss cottages with slanting roofs and chimneys, also churches, towers, factories, monuments, bridges, tunnels, an entire bedroom set or parlor set, a village, a street, the cars with the engine and even the cow-catcher, the railroad station, etc., etc., can be easily and effectively produced, while much instruction may readily be connected with each product, however small it may be.

47



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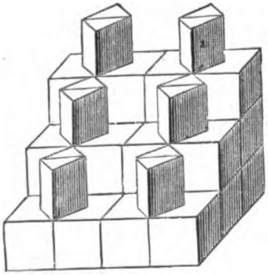

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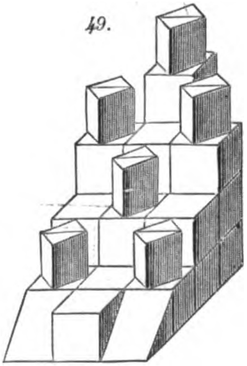

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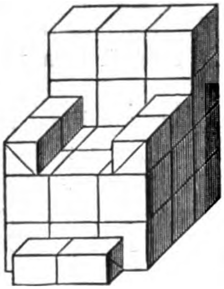

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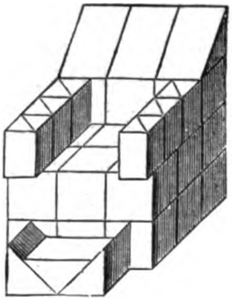

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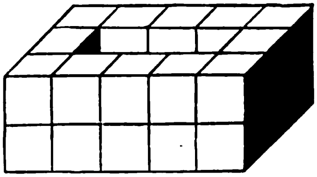

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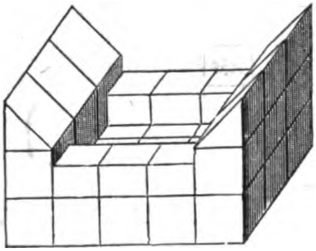

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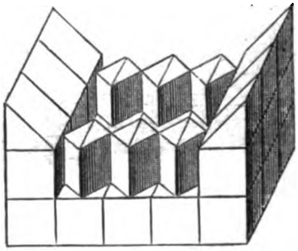

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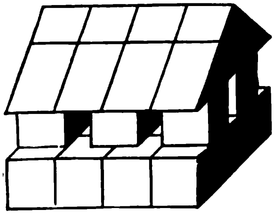

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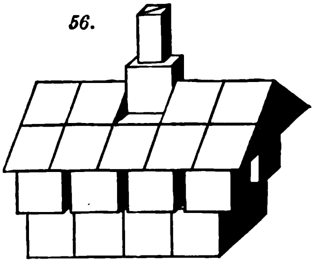

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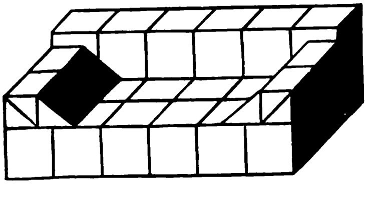

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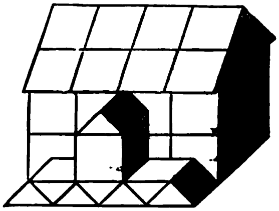

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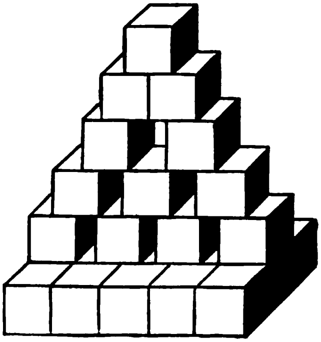

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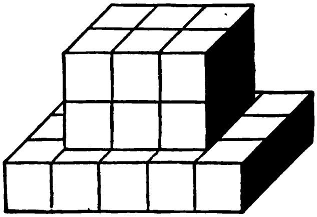

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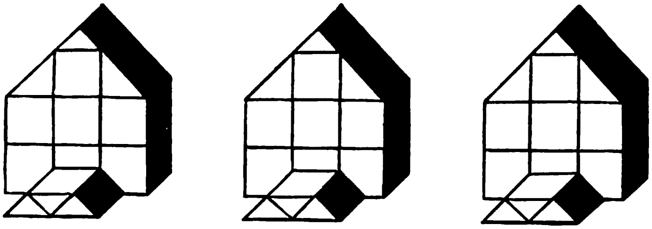

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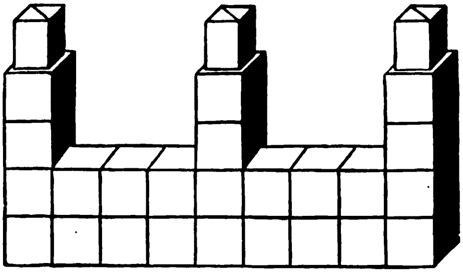

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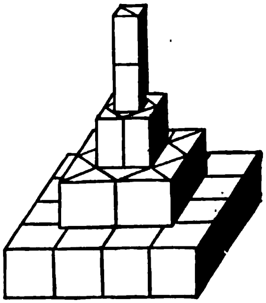

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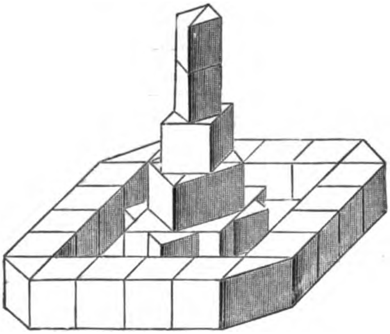

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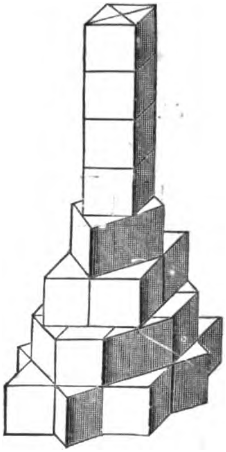

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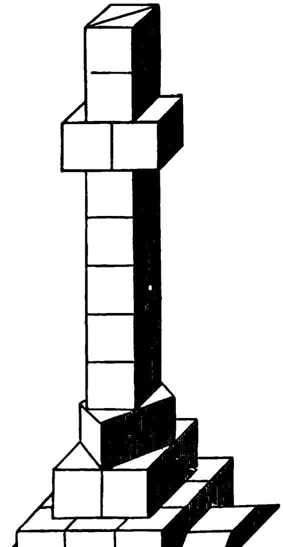

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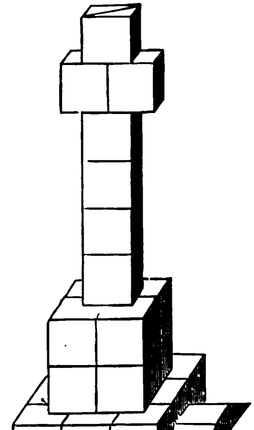

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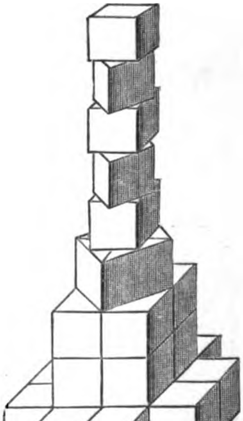

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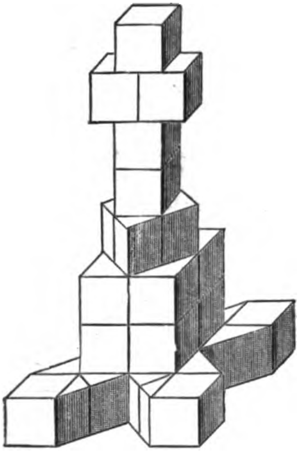

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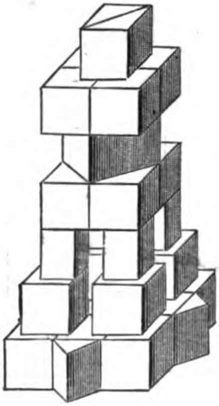

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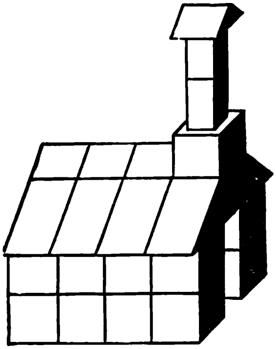

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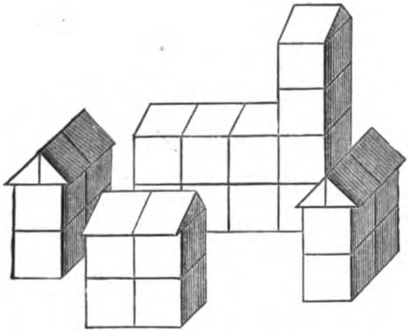

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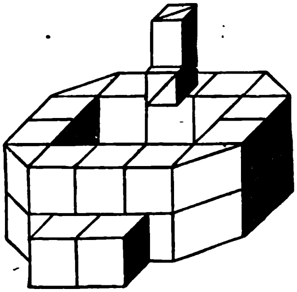

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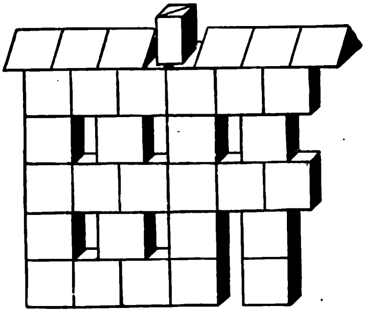

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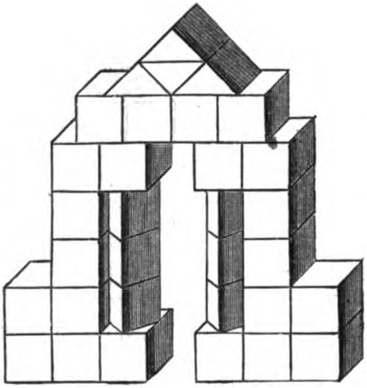

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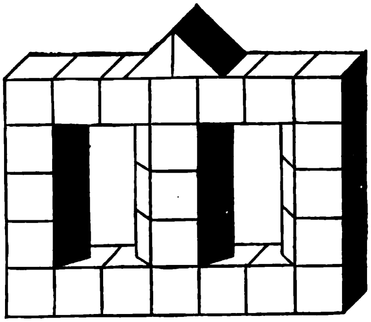

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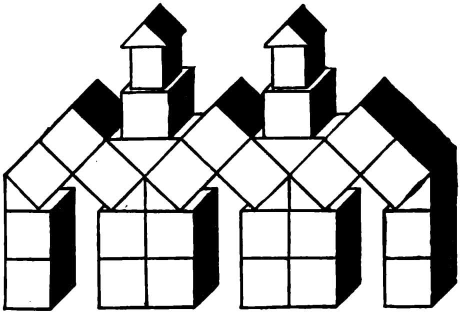

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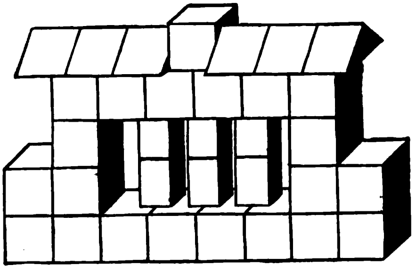

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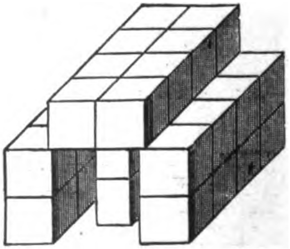

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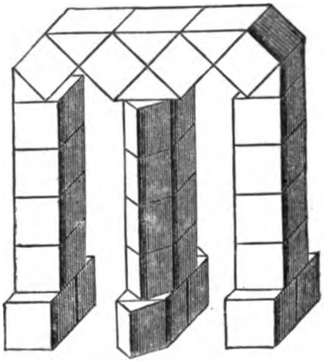

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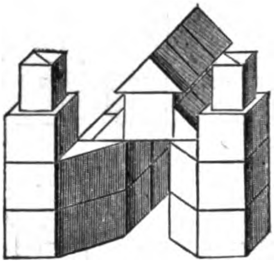

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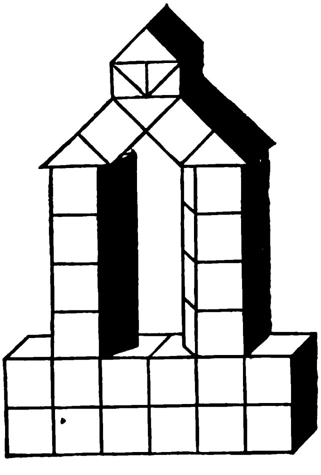

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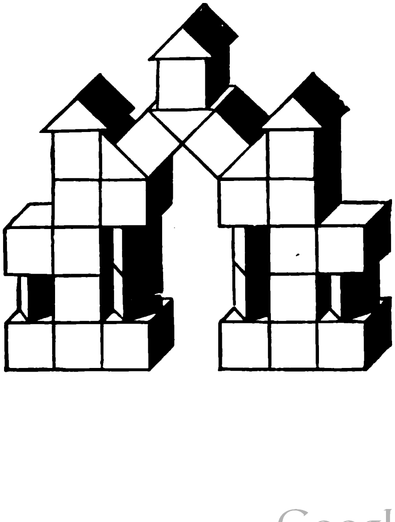

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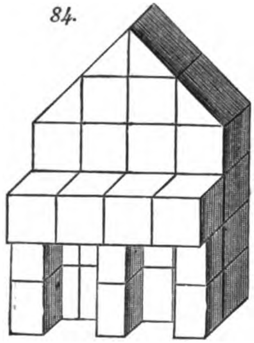

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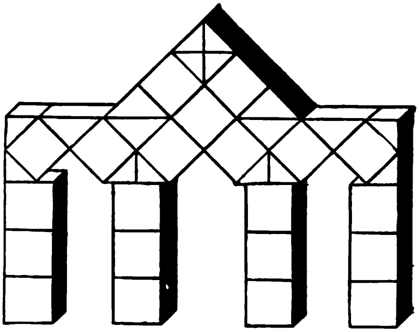

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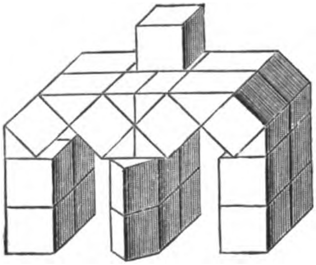

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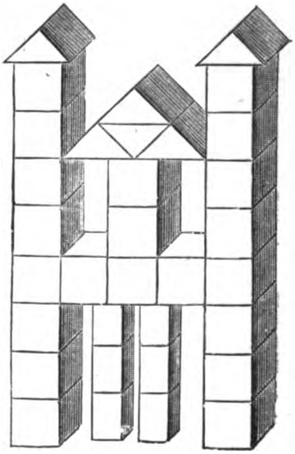

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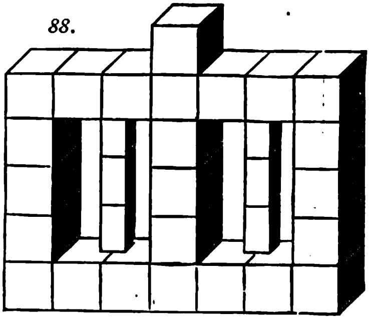
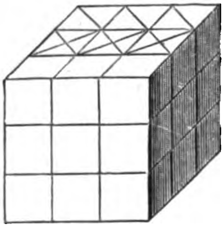


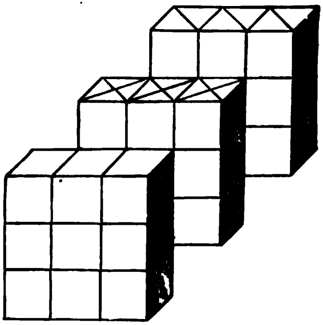
What kind of geometrical forms or forms of knowledge are developed in this Gift?

89.



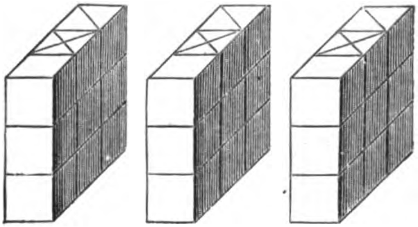
1–The cube is divided front and back,

90.



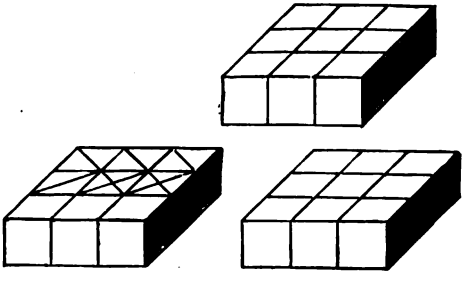
right and left,

91.



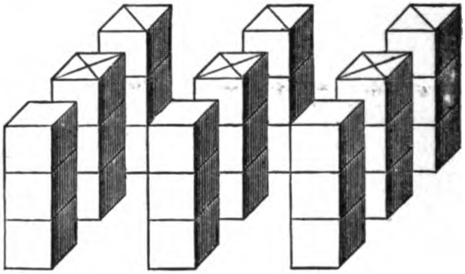
up and down, into three equal squares, standing and lying.

92.



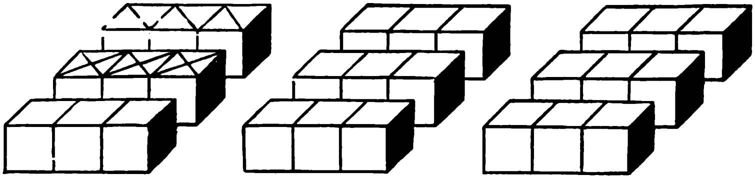
93.

2—Into nine parts—standing,



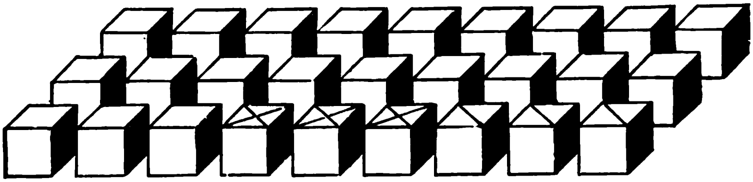
and lying.

94.



3—Into twenty-seven parts.

95.



The twenty-seven cubes, when rejoined, can be regarded as ever so many different wholes, representing first a cube; then a wall three cubes high, one cube deep, and nine cubes long; or a lying beam twenty-seven cubes long; or a wooden board three cubes wide, one cube thick, and nine cubes long, etc. Each form of *life* is likewise *a whole.*

If the forms of *knowledge* of the Third Gift, consisting of halves, quarters, and eighths, have not been practiced enough previously, those exercises should be repeated with this Gift, and the child should be given *eight* cubes from the Fifth Gift, and such exercises as have been omitted, should be now practiced. When this is done, then may follow the division of the Fifth Gift into thirds, ninths, and twenty-sevenths. Repetitions are of so much more importance, as they throw each time new light on the subject. It is also a matter of course that, when the cube is divided into thirds and ninths, the ninths are always turned again into thirds, and the thirds into one whole.

Addition and subtraction, multiplication and division can likewise be practiced with the parts of the cube. For instance:

Four ninths and three ninths are what? or,
Seven ninths less two ninths are what? or,
Twice three ninths are what? or,
The third part of three ninths is what?

Similar exercises are to be made with the ninth divided into twenty-sevenths.

Also the following exercise can be made:

1—one whole = 27 cubes;
2—one half = 13½ cubes;
3—one third = 9 cubes;
4—one quarter = 6¾ cubes;
5—one sixth = 4½ cubes;
6—one twelfth = 2¼ cubes.

Other lessons in numbers may be thus given:

The child counts halves:

1—½; 1; 1½; 2; 2½; 3;—and then backwards: 3; 2½; 2; 1½; 1; ½.

2—Pursue a similar course with the twelve quarters, thus: ¼; ½; ¾; 1; 1¼; 1½; 1¾; 2; etc., and then backwards: 2; 1¾; 1½; 1¼; 1; ¾; ½; ¼.

3—Let the child take six cubes, and having placed the six halves upon them, begin to count:
1½; 3; 4½; 6; 7½; 9; and backwards: 9; 7½; 6; 4½; 3; 1½.

4—Carry out similar exercises with the quarter pieces.

5—Place alternately *one half* and *one quarter* on the table, and count again: ½; ¾; 1¼; 1½; 2; 2¼; 2¾; 3; 3½; 3¾; 4¼; 4½; etc.

6—Let the child take 12 *cubes*, place upon each cube *one quarter*, and count: 1¼; 2½; 3¾; 5; 6¼; 7½; 8¾; 10; etc., etc.

7—Arrange the cubes and their parts promiscuously, and tell the child to add the various parts, for instance: 2½ + 1¼ + ½ + 2½ = 6¾.

Of course, such exercises could only be made with children well prepared in and through the kindergarten.

Multiplication and division with fractions are thus to be carried out: Let each child demonstrate as he speaks; for example:

$\frac{1}{4} \times 2 = \frac{1}{2}$
$\frac{1}{4} \times 3 = \frac{3}{4}$
$\frac{1}{4} \times 4 = \frac{4}{4}$ or 1.

take $\frac{1}{2}$ of $2 = 1$
" $\frac{1}{2}$ of $3 = 1\frac{1}{2}$
" $\frac{1}{2}$ of $4 = 2$.

$\frac{1}{2} \times 2 = \frac{2}{2}$ or 1
$\frac{1}{2} \times 3 = \frac{3}{2}$ or $1\frac{1}{2}$
$\frac{1}{2} \times 4 = \frac{4}{2}$ or 2.

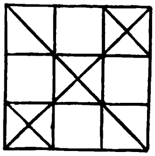
$\frac{1}{2} : 1 = 2$
$\frac{3}{4} : 1\frac{1}{2} = 2$
$\frac{1}{4} : 2 = 8$.

etc., etc.

Addition, subtraction, multiplication, and division are also carried out with the *whole* cubes in the same manner as with the bricks of the Fourth Gift, only more extensively.

What kind of geometrical forms, or forms of knowledge, are developed?

96.



1—Form a square of *nine* cubes, and let each *corner cube* be divided into halves or quarters, and the central one into quarters;

2—divide this square into two equal right-angled triangles;

3—divide each of these triangles again into two right-angled triangles, making four triangles in all;

4—unite the bases, or longest lines, of the triangles so as to produce *two squares;*

5—unite the two squares so as to form a *rectangle,* having the sides double the length of its ends;

6—take away one fourth of the rectangle (one of the four triangles of which it was formed), and join it on the other end, so as to form a *rhomboid* having the sides double the length of its ends;

7—divide this rhomboid into two equal rhomboids;

8—unite these two rhomboids so as to form another rhomboid, the sides of which are *four times* the length of its ends;

9—divide this rhomboid into four equal triangles;

10—unite these into two equal squares, and place them *one upon another,* forming thus a *square prism;* describe this;

11—divide the square prism into *two equal triangular prisms*, and describe them: faces, corners, and edges;

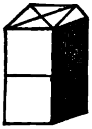
12—take away *four* pieces from the rectangular corners, and unite the remainder into a *six-sided prism;* describe it;

13—divide this solid, and re-arrange it into *two equal four-sided prisms* (looking like two half-cubes of the Third Gift), and into *four triangular prisms;*

14—unite the prisms so as to form *two rhomboidal prisms*, each having *two faces* rhomboids, *two* squares, and *two* rectangles;

15—unite the two prisms into *one* having the same form.

97.



Other exercises are:

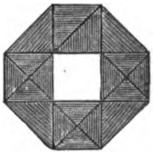
1—With ten of the smallest triangular pieces make a *five-sided* form—a *five-sided prism;*

2—divide this into *five triangular prisms;*

3—unite these so as to form *three prisms*, viz.:
one triangular prism,
one rhomboidal prism, and
one square prism.

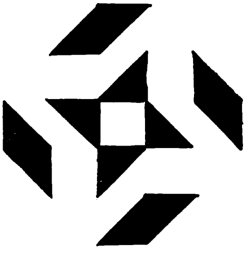
Or:

98.



1—Form of the eighteen triangular pieces *an octagon* having a hollow centre;

99.



2—divide this into *four rhomboids* and *four triangles;*

3—unite these again so as to form *two equal hexagons;*

4—place one upon the other so as to form a hexagonal prism—a "six-sided prism," as the child may call it;

5—remove two of its parts, so as to leave *two square prisms;*

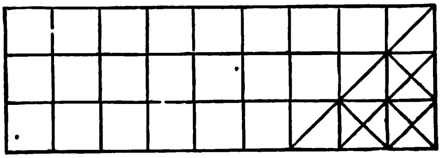
6—unite the parts removed so as to form of them *a square prism;* etc., etc.

An endless variety of pleasant and instructive exercises calculated to develop *form*, *number*, and *order*, may be proposed.

Another exercise for advanced pupils may be:

1—Form an oblong lying down, three by nine cubes;

100.



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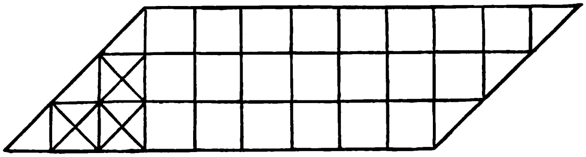
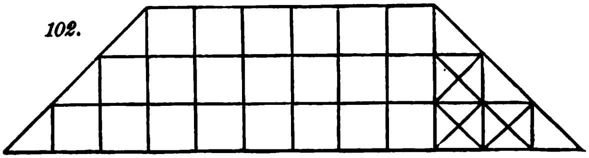


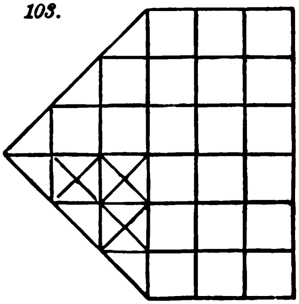
2—change this into a rhomboid;

102.



3—change the latter into a trapezoid;

103.



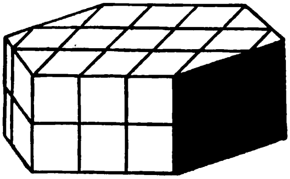
4—divide this, again, into two equal parts, and rejoin these into a pentagon;

5—change this pentagon into a hexagon, an octagon, etc.

Or:

1—Make of the entire cube an oblong hexagon, two cubes high;

102.



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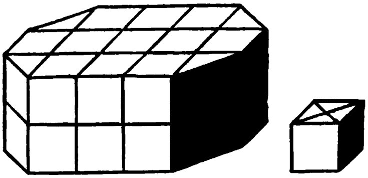
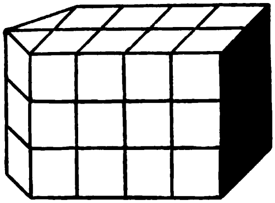


2—make of the entire cube an oblong octagon, two cubes high, leaving out one small cube divided into quarters;

106.



3—make of the entire cube a pentagon, three cubes high, with three right angles.

Again:

1—Let the children find out how many *equal squares* they can form of the parts of the whole cube;

2—how many *different squares* they can form of them;

3—how many triangles;

4—have the longest, or base lines, of the triangles turned *towards* the child,—then *away* from the child,—towards the right—or left side;

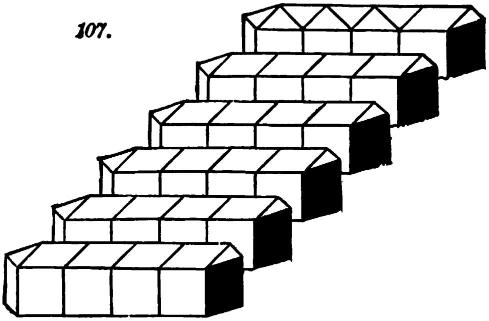
5—see, how many rectangles can be formed; etc., etc.

Or:

1—The cube is divided into nine parts lying down;

2—into six oblong hexagons;

107.



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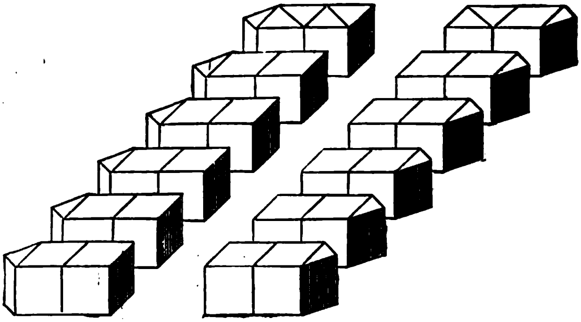

3—into twelve oblong pentagons; etc.

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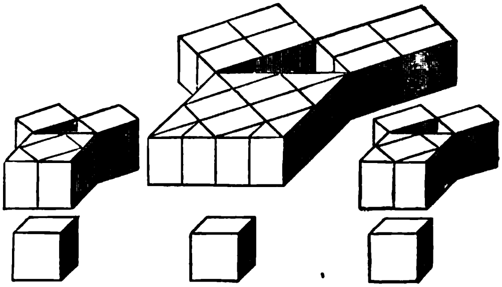
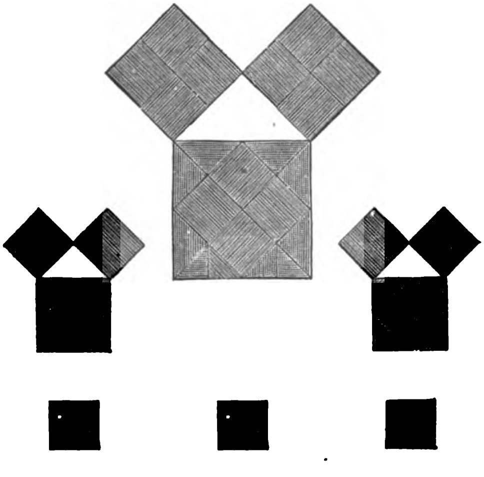


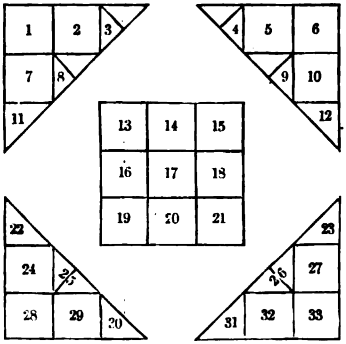
The Pythagorean theorem is explained, and demonstrated—as it were—in play.

109 a



How are the artistic forms, or forms of beauty, carried out?

110

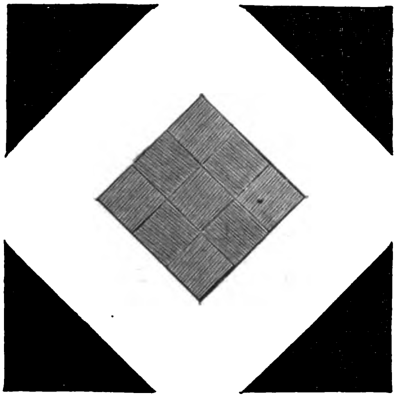


The parts of the whole cube are arranged as follows:

A square of cubes, *three by three*, is placed in the middle, and four right-angled triangles, each half the size of the central square, are arranged around it, with the base line turned towards the corners of the square, leaving the space of 1½ cube between the square and the four triangles.

Any of the cubes may be changed in its position except the central cube, which remains immovable; but whatever change is made with *one* cube, the same change must be made with the three corresponding cubes also. For instance: If No. 1 is drawn out, the same must be done with Nos. 33, 6, and 28; and if No. 13 is moved up to No. 8—No. 21 must be moved down to No. 26—No. 15 up to No. 9—and No. 19 towards No. 25, etc. The variety is great, the effect of the kaleidoscopic forms beautiful, and the changes that can be made are almost endless.

111.



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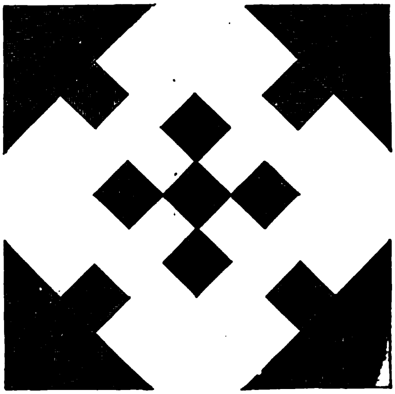

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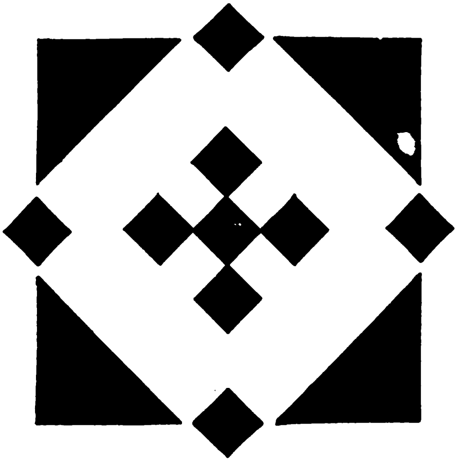

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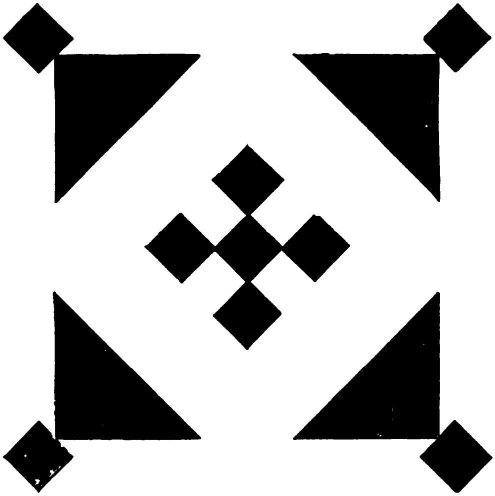

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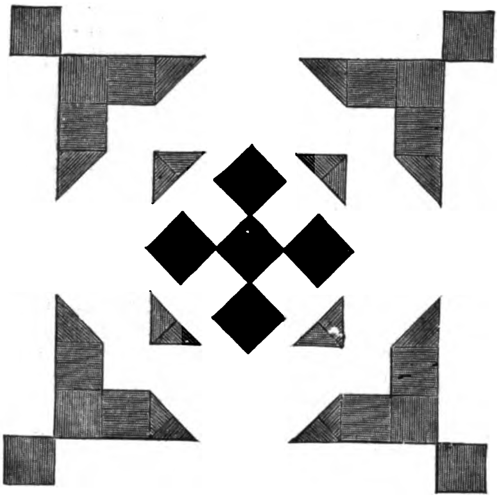

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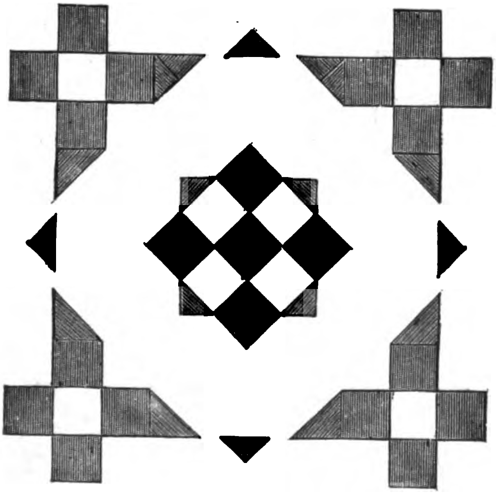

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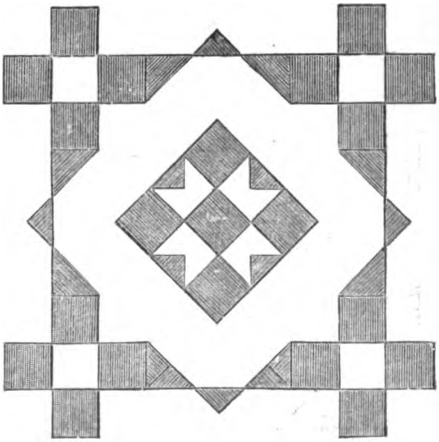

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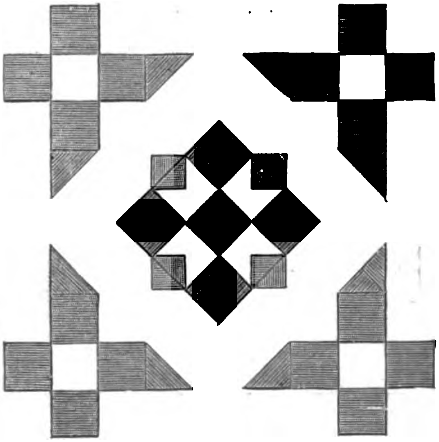

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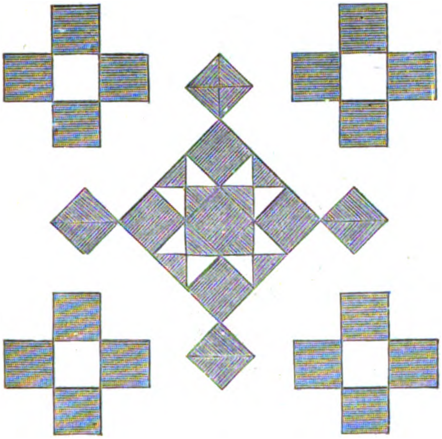

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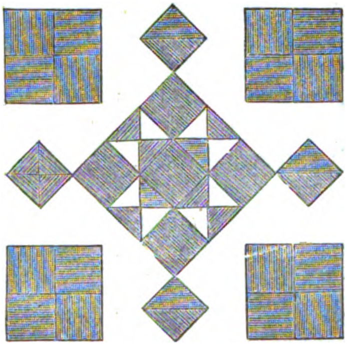

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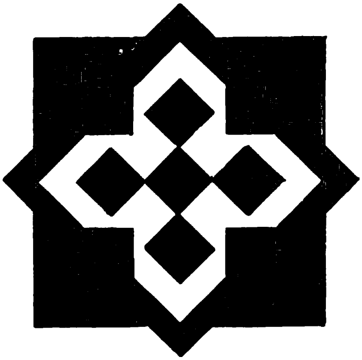

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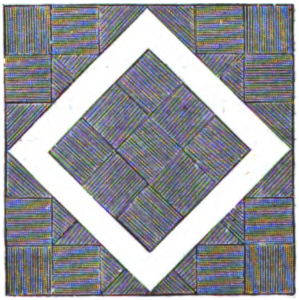
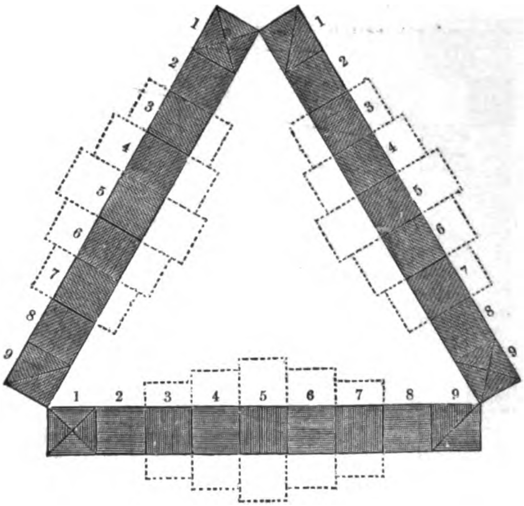


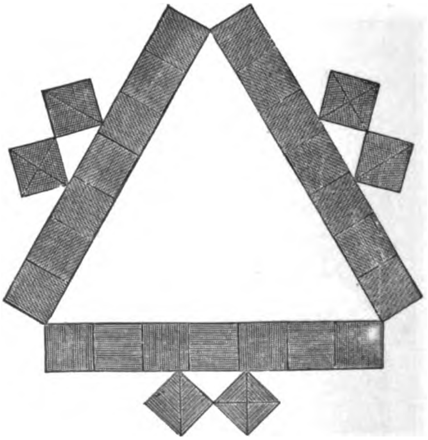
Are these the only kinds of forms of beauty?

123.



No; for beautiful forms are also gained by starting from a triangular ground-form, for instance: Place nine cubes before you from the left towards the right side touching one another in their sides; place nine cubes in a slanting direction upwards and touching on the left upper corner of the first row of cubes, and a row of nine cubes on the right upper corner slantwise upwards towards one another so that their upper ends touch, enclosing thus the space of an equilateral triangle.

124.



In this form again, whenever one cube is moved, the corresponding cubes must be moved also, or the symmetry and beauty of the form will be entirely lost, for instance: Move the three central cubes — the three Nos. 5 — one square inch towards the inside; then move the cubes touching the central cubes— the Nos. 4—three quarters of a square inch towards the inside; move next the cubes touching the Nos. 4—the Nos. 3—half their width (which is equal to half a square inch) towards the inside, etc.

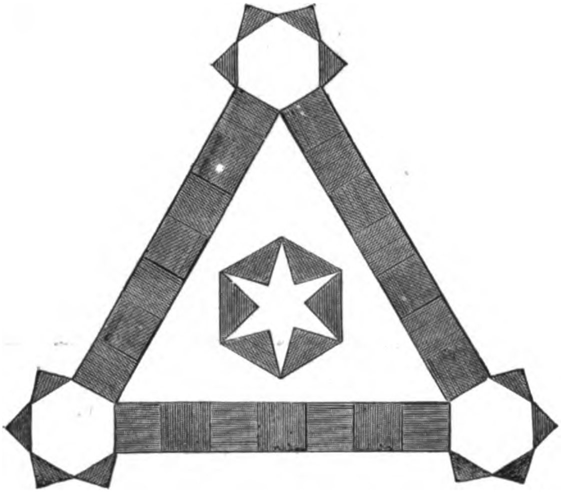
The cubes can also be moved similarly outwards, or partly towards the outside. By taking from each row *one* cube—the cubes which are divided into *halves*—and joining the rows of cubes, now only consisting each of eight cubes, again into an equilateral triangle (the six half-cubes may be used by placing two of them on each side in various corresponding positions), and by moving also the other cubes the same way as before towards the inside or outside, another beautiful series of forms is introduced.

The three cubes consisting of quarters may also be removed, each side of the triangle then being only seven cubes long; join the half-cubes also into cubes, place then two cubes — each corner to corner—on the sides of the triangle, and make corresponding movements with the cubes.

Or:

125.

Join the half-cubes into a central star within the enclosed triangular space, place four quarters in a circular direction on each outside corner, and begin your changes from this form



Such exercises develop the sense of, and taste for, the beautiful, and the little hands become dexterous to lay forms that are harmonious and beautiful.

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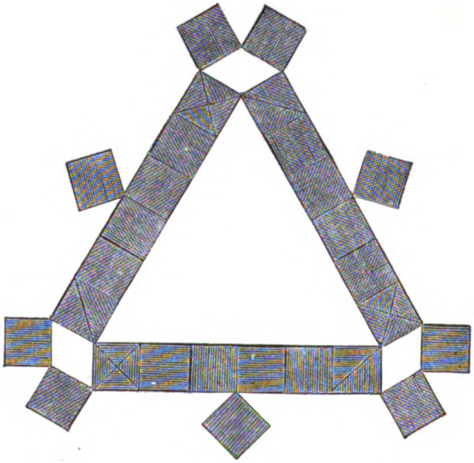

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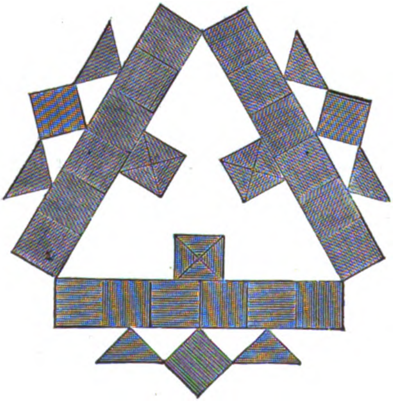

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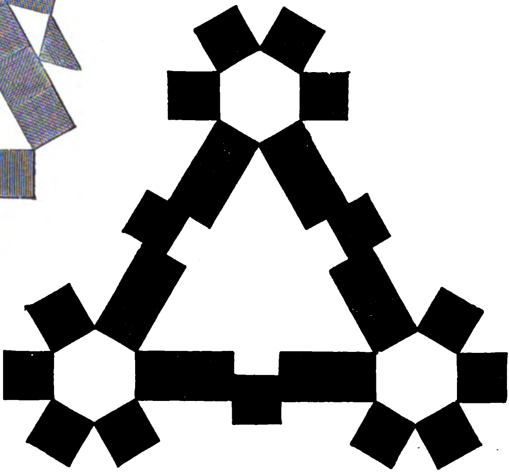

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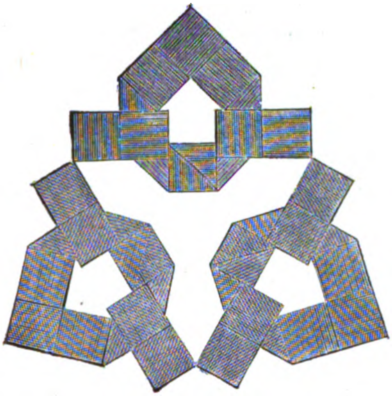

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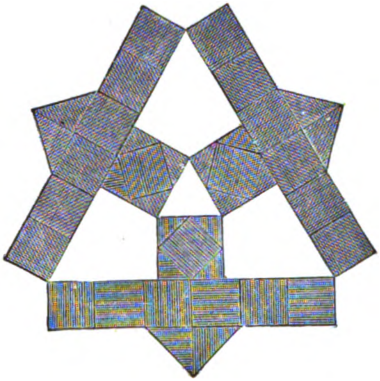

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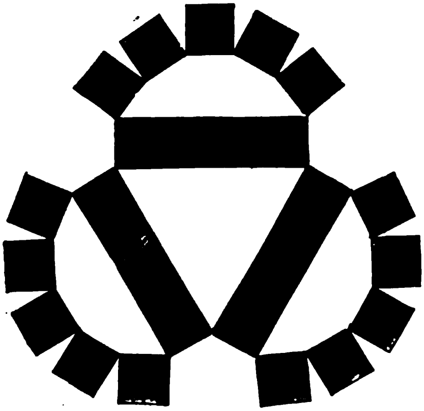

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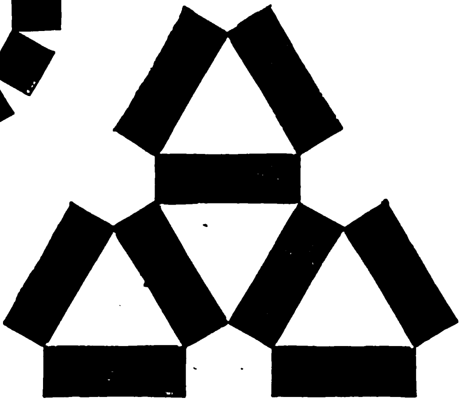


In what manner is free-building carried out?

1—In building alone with the Fifth Gift—using always all its parts;
2—in combination with the Third Gift;
3—in combination with the Fourth Gift;
4—in combination with the Third and Fourth Gifts.

By seeing and hearing, and by doing things often, the child retains lasting impressions of represented forms. When the child grows older, these representations form the surest foundation and the fruitful ground for further instruction.

In the Third and Fourth Gifts the *perpendicular* and *horizontal* lines occurred; both these lines are *opposites*, and need their intermediate, the *slanting line*, which appears in this Gift in the divided cubes.

In packing this Gift into the box, it is best to place the halves and quarters at the bottom.

Do not use this Gift—nor any other—longer than the attention of the children can be kept alive.

Short instructive stories and conversations should be interwoven. It should also be remembered, that each definite beginning suggests its own peculiar proceeding in making changes. Thus the fundamental or ground form suggests the entire following series.—In manipulating with the cubes, the child's attention is fixed, and because nothing is abstract, instruction becomes play to him.—The right way is pursued, if nothing is destroyed, and *changes* are made only in order to gain new forms. It is the aim of all of Frœbel's Occupations to guide the child to correct action, to accustom it to follow certain rules, and to prepare it through play to self-conscious, regulated, inventive work. Only then the child has the true benefit of instruction, when it is not "crammed," and when not too much is asked of its yet feeble strength. The child must always be able to look over its own field of activity. The mathematical truths presented to the child in the kindergarten, are as bodies introduced to, and taken hold of by, the child without difficulty or effort. The kindergartner should ever take care that she does not give too much "word instruction," or "lectures" to the child. The child forms, sees, observes, compares, and expresses its perception (observation), and by many repetitions these become the mental property of the child, and this development should never be hastened.

THE SIXTH GIFT.

Of what does the Sixth Gift consist?

It consists of a cube, of the same size as the cube of the Fifth Gift, divided into twenty-seven oblongs of the same size as those of the Fourth Gift. Three of these oblongs are divided lengthwise, each into two equal pillars, and six oblongs are divided crosswise, each into two squares. As the Fifth Gift was an extension of the Third Gift, so the Sixth Gift is a sequence and extension of the Fourth Gift.

What is the difference between the Sixth and the Fifth Gift?

Although we find in the Sixth Gift the same bulk as in the Fifth Gift, a difference exists in the number as well as in the forms of its several parts, which consist of eighteen bricks, six pillars, and twelve squares—thirty-six pieces altogether.

What is the peculiarity of this Gift?

It admits of many more forms of *life* than forms of *beauty* and *mathematical* forms.

What rules should guide us in using this Gift?

The same rules as in using the foregoing three Gifts. We must study the relations of the new parts to one another as well as to the whole, for instance:

Compare the squares with the bricks—and also with the cubes;—in what relation do they stand to the cube?—To the brick?—Is there any difference in the number or in the nature of their surfaces, edges, and angles?—Compare the square with the pillars,—and the pillars with the cubes and with the whole brick.—

The variety of forms is much less than in the Fifth Gift. If the oblong is measured upon the square net-work of the table, we find that it covers exactly *two* square inches.

Placing the square of the Sixth Gift by the side of it, we find that it covers exactly *one* of the square inches marked on the table, or half of the space covered by the oblong. Thus two squares placed together form an oblong, and this shows that two squares are equal to one oblong or brick.

The square has the same number of faces, edges, and corners as the oblong; but the faces of the latter are *all* oblongs, whereas the square brick has two square and four oblong faces; and consequently on the sides of the square eight edges are of equal length, while four are only half as long as the former.—The pillar has likewise two square and four oblong faces, the former being half a square inch long, or half as long as the oblong face of the square brick,—while the latter are two inches long and half an inch wide, or of the same size as the narrow, long side of the brick. Two of these pillars are equal in contents to one oblong or brick of the Fourth and Sixth Gifts.

With what has the child to acquaint itself particularly in this Gift?

With the proportions of the different parts in respect to size. With the parts of this Gift a still larger space can be enclosed than with those of any of the preceding Gifts. The oblong of the *Fourth Gift* was developed from the cubes of the *Third Gift;* in the *Fifth Gift* followed a multiplicity of the cubes in addition to the new element of diagonal division; therefore, the *Sixth Gift* must find its connection in the *Fourth Gift*,—must give a multiplicity of the oblongs, and a similar division as the Fifth Gift in regard to *number*.

Preliminary exercises are the following: The child arranges the different parts of the Gift—each kind by itself, and counts the number of the bricks, squares, and pillars. The surfaces of the different parts are compared with each other, and the bricks, squares, and pillars are placed on their different surfaces. Thus the child will become sufficiently acquainted with this Gift and may pass over to independent work.

What kind of forms can be built with this Gift?

1—Forms of *life*, i. e. objects we see around us;

2—Forms of *beauty* or *symmetry*, and

3—Forms of *knowledge* or *mathematical* forms.

Is building according to direction advisable?

In this gift also building by direction should not be overlooked. It prevents mere mechanical working and creates a clear conception of forms and bodies, of their position, number, proportion, etc.

How are the forms of life carried out?

Without copious illustration by diagrams, it is difficult to describe fully the rich field which an inventive mind will delight to develop. Many forms of the Fourth Gift may be taken as a basis for larger and more complicated compositions. The sense of form once awakened, the child looks not only more acutely and clearly at every object—takes it in, so to say—but is able also to reproduce it approximately.

Whatever forms children may create with the cubes or bricks, will be found to possess a corresponding existence—in every thing there is life. They reproduce or build what is most familiar to them: houses, churches, a village, bridges, furniture, etc.

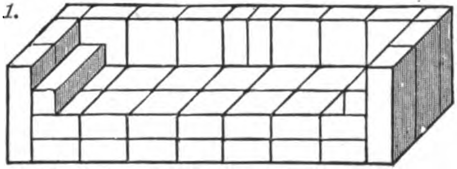
A little girl, for instance, will make a room with chairs, a table, a bedstead, a fire-place—even the entrance-door will not be forgotten. Another child prefers building monuments and crosses. A boy will prefer to construct a church, the city-hall, a house, a stable, etc. The principle that one form should always be derived from another can here be carried out only with great difficulty, and it is frequently necessary to lay an entirely new foundation.

The child may begin by making different kinds of seats, tables, baskets, wells, shafts (of a mine), chimneys, bedsteads, etc., and then a conversation on seats may prove instructive;—or one on tables, basket-making, flower-baskets, fruit-baskets, or vegetable baskets, etc.

The following are examples for building forms of life by direction:

1—Make of six lying bricks an oblong, which is six inches long, two inches wide (broad), and half an inch high (thick). Place upon this another oblong of equal size, but use for this *all the squares;* this is to represent the *seat* of a sofa. In order to make the back of the sofa, take six bricks, and form of them an oblong six inches long, two inches high, and half an inch wide; push this close up to the back of the seat. For the sides of the sofa use four bricks, form two squares of them, and stand these directly against the sides of the seat, so that the front of the seat and the front of the side-parts are even (level); fill up the corners between the back and sides; place a pillar at

1.



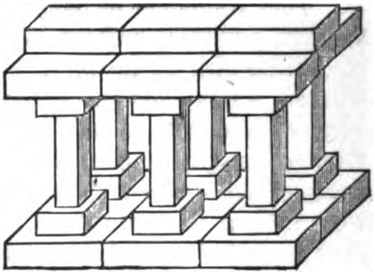
Sofa

either end of the sofa-seat as a cushion—and the sofa is finished.—Two bricks and two pillars are left. Which of the children can make of them the prettiest sofa-table?

2—A Park-gate is made as follows: Join six bricks into an oblong twelve inches long, one inch wide, and half an inch high. Place in the middle of each brick a tablet, upon each of these a pillar, and on each of these again a square. Cover the whole with rows of bricks, each row to be shorter than the next lower one.

3—A Colonnade: Make two oblongs of three bricks each, six inches long, one inch wide, and half an inch high, and touching at their short sides. Lay these two oblongs parallel to each other—at one square's distance. Then place in the middle of each brick a tablet, on each tablet a pillar, and on each pillar again a tablet. Cover the whole with the remaining bricks.

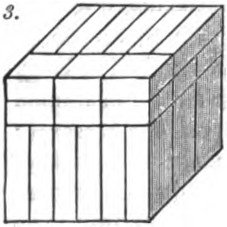
2.



Colonnade.

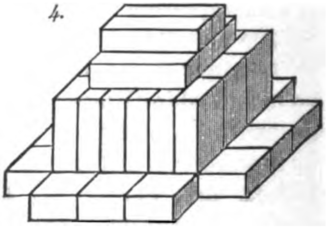
The following forms will give an idea of, and will be a guide in regard to, the forms which the child is led to build:

3.



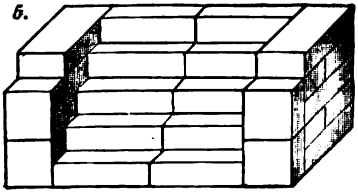
Cube or box.

4.



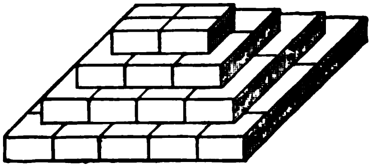
Covered well.

5.



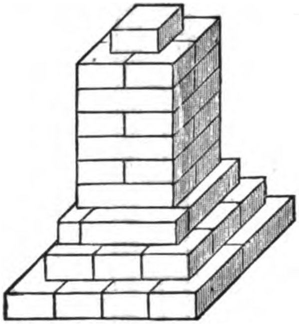
Stoop.

6.



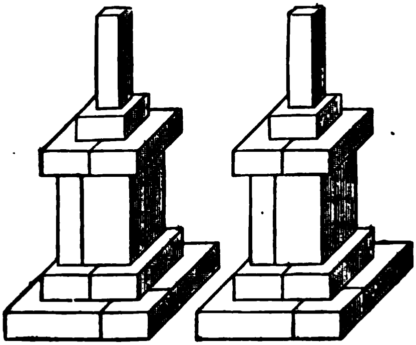
Pedestal.

7.



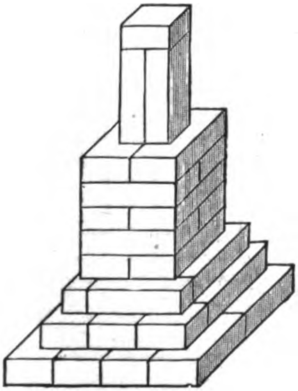
Monument.

8.



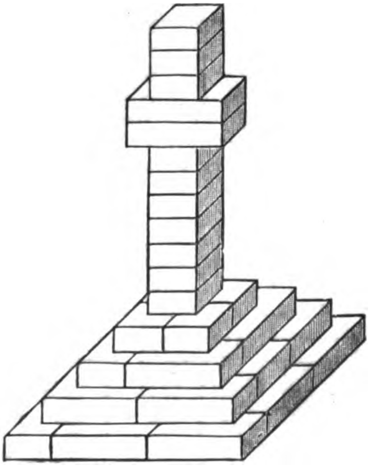
Two monuments.

9.



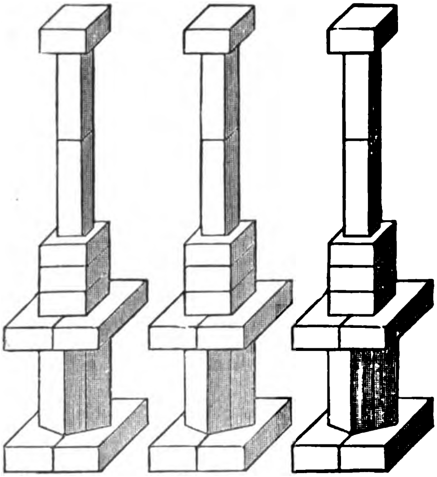
Monument.

10.



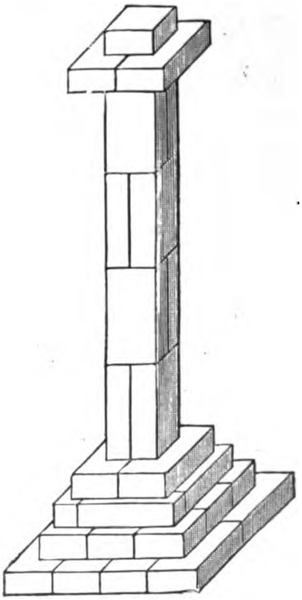
Cross with steps.

11.



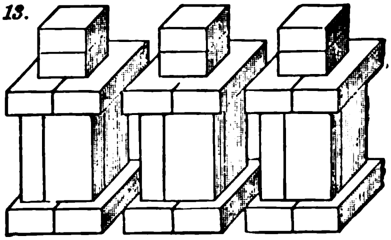
Three pillars.

12.



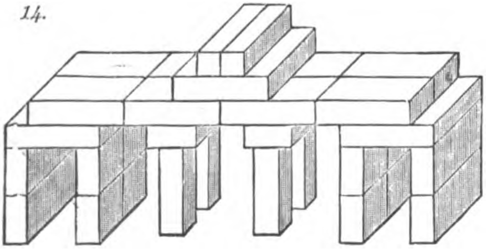
Pillar with steps.

13.



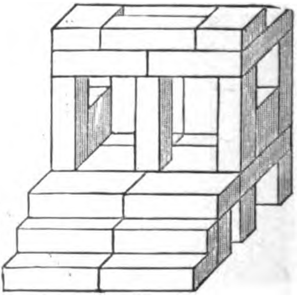
Three pedestals.

14.



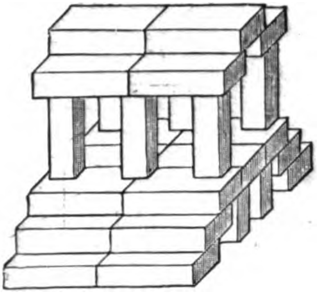
Park-gate.

15.



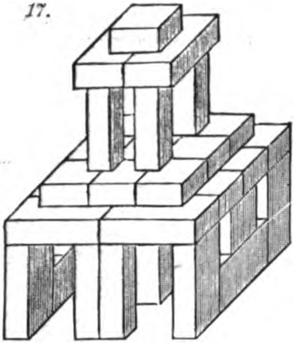
House with steps.

16.



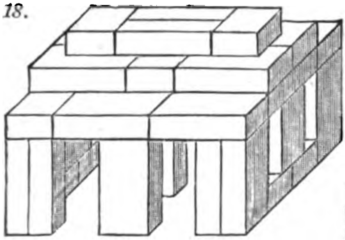
Garden-house with steps on two sides.

17.



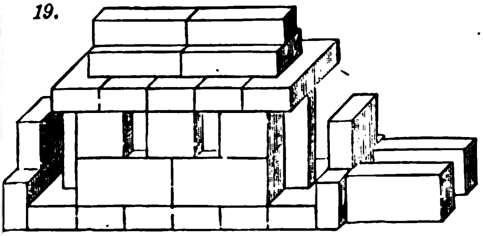
Villa.

18.



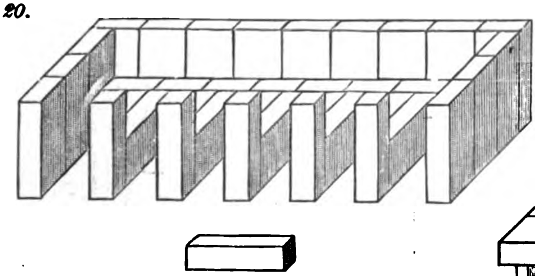
House.

19.



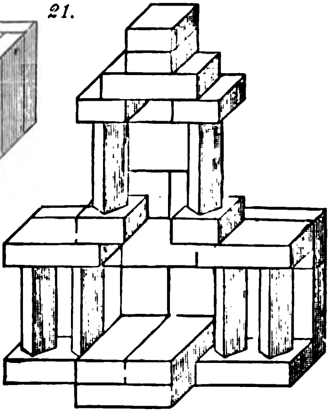
House.

20.



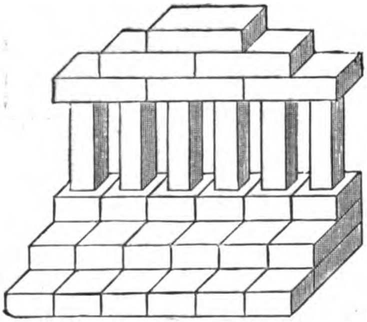
Stable.

21.



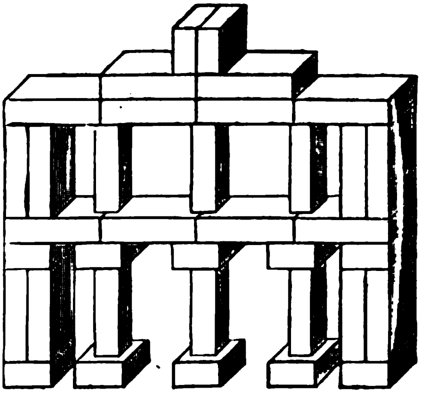
High-altar.

22.



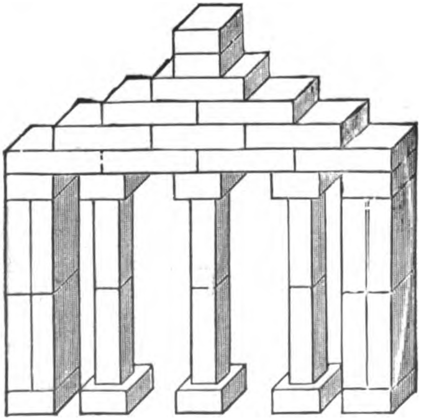
House with pillars.

23.



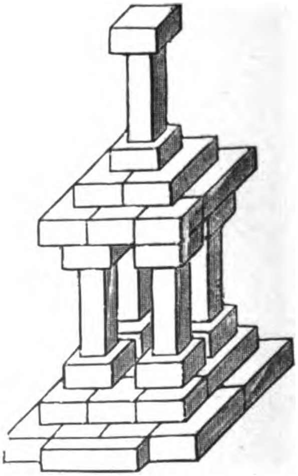
Front of a house.

24.



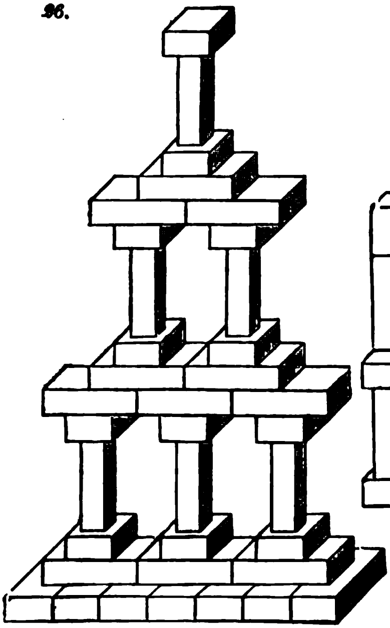
Triumphal arch.

25.



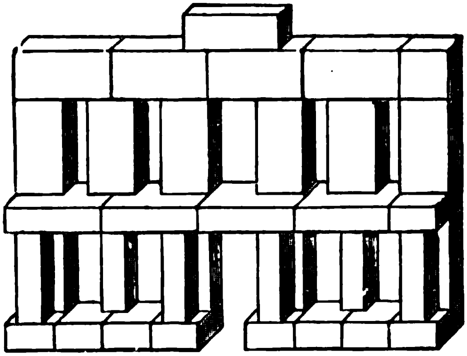
Monumental column.

26.



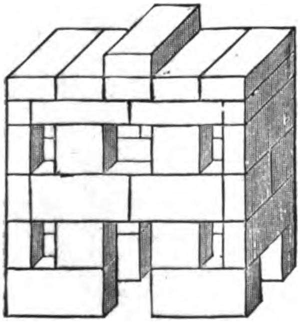
Triumphal column.

27.



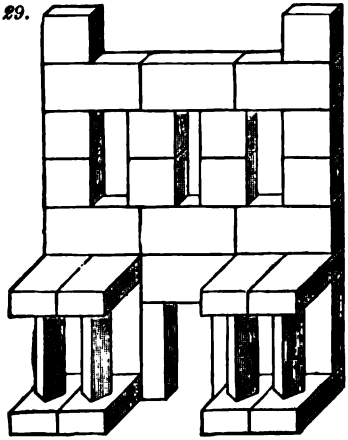
House.

28.



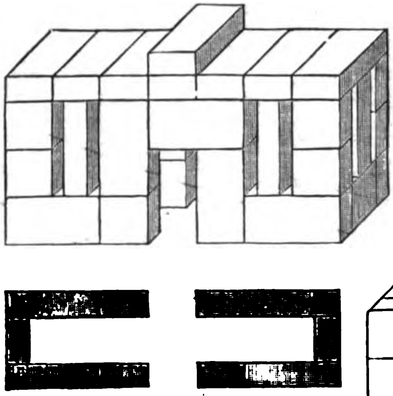
House.

29.



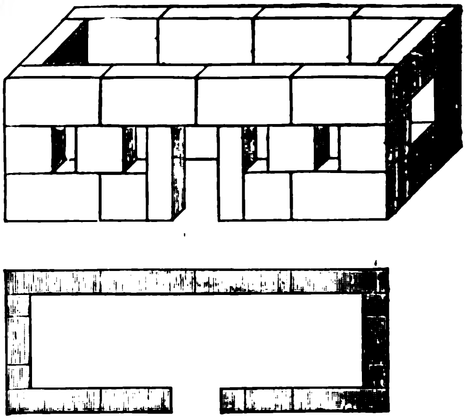
House.

30.



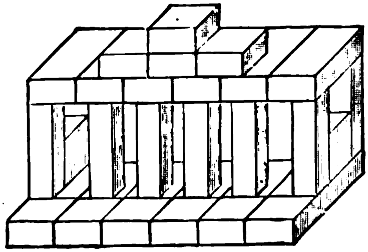
House.

31.



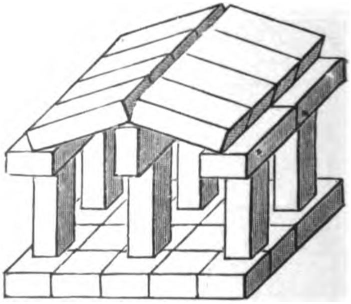
Unfinished house.

32.



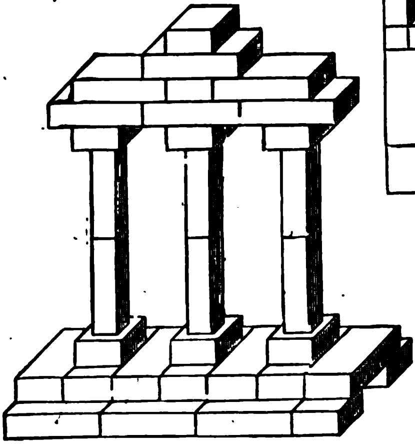
Guard-house.

33.



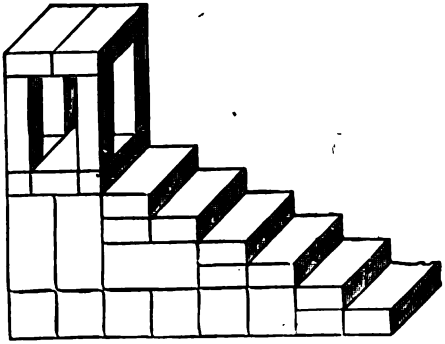
Market-stall.

34.



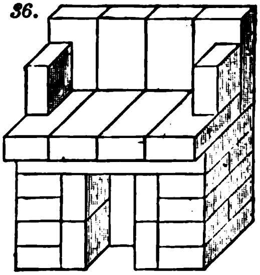
Three memorial pillars.

35.



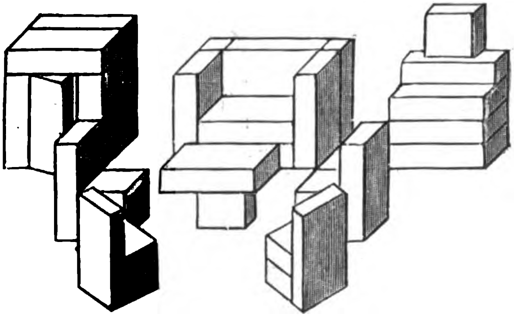
Lookout (belle-vue).

36.



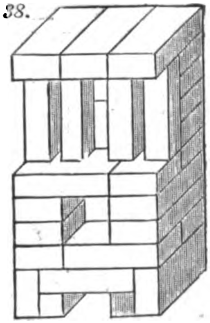
Writing-table.

37.



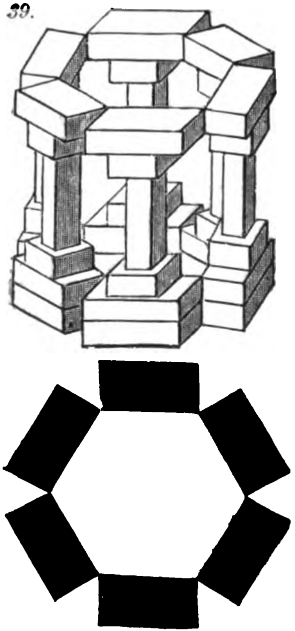
Parlor set.

38.



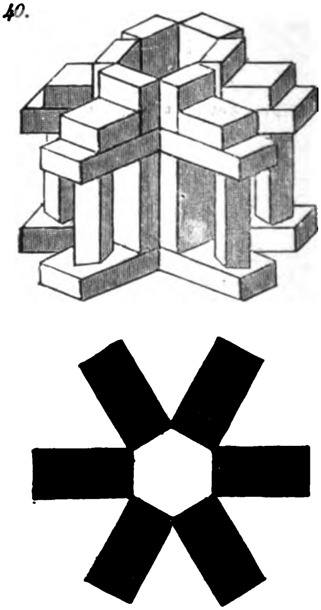
Stove.

39.



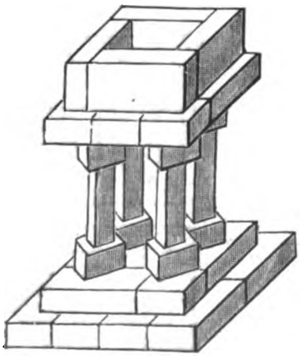
Unfinished garden-house and ground-plan.

40.



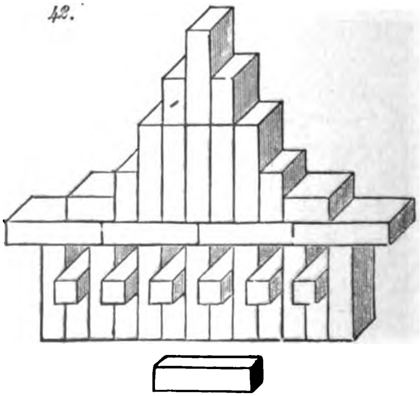
Well-house and ground-plan.

41.



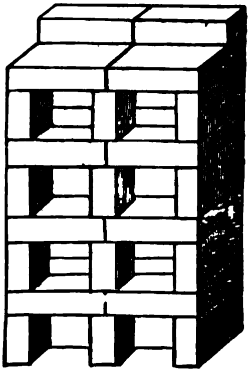
Baptismal font.

42.



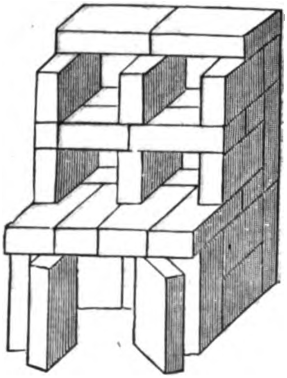
Church organ.

43.



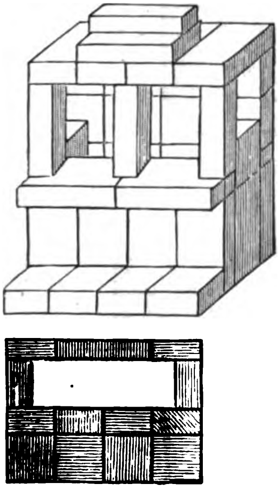
Book-case.

44.



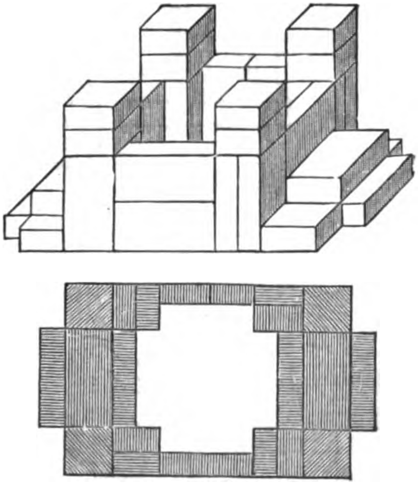
Kitchen-closet.

45.



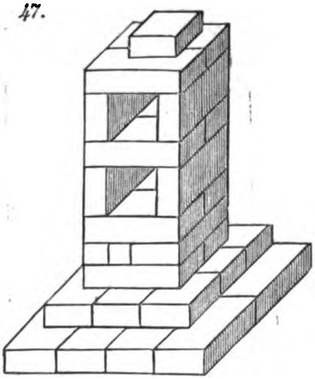
News-stand
and ground-plan.

46.



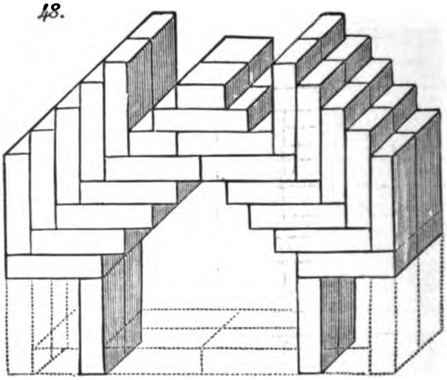
Bath
and ground-plan.

47.



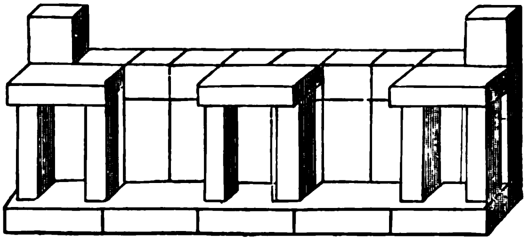
Monument.

48.



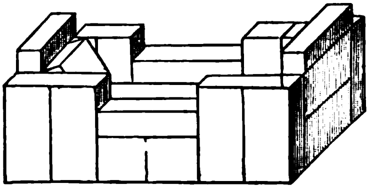
Artificial building.

49.

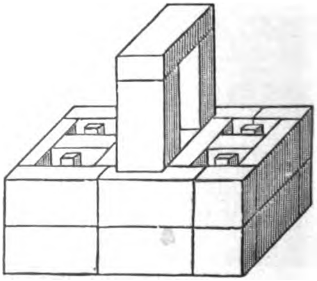


Colonnade.

50.

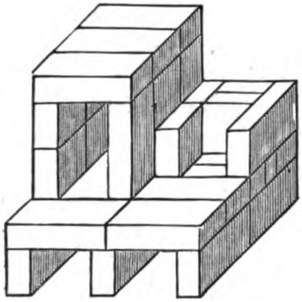


Bed-stead.



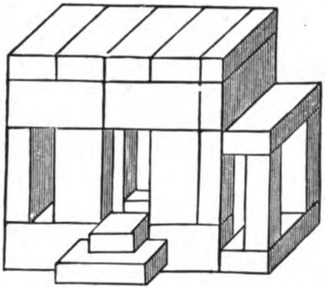
Bottle-basket.

52.



Cooking-stove.

53.



Villa,

Is free building allowed?

In order to develop the child's faculties, the true way to pursue is, that the child should not be forced to imitate—mechanically—forms placed before it, but should rather be directed to represent with the given material whatever its desire or inclination may suggest. Therefore, free building should be encouraged. The rule to converse about the forms represented, to connect them in some little rhyme, or song, or story, finds particular application in the forms of life. The kindergartner should never speak to the children in a didactic tone about the use, aim, etc., of the objects represented, but should rather try to bring every *new* form into some relation with the child's own life, with its wishes, and with those it loves.

Little songs should also be connected with the work, for instance:

"I'm but a little child, 'tis true,
But I can build a house for you.
I'll make the staircase strong and high,
My hands are small, but still I'll try;
I shall not need a single nail,
If care I take, I cannot fail.
And that 'tis quickly done you'll own,
For here you see your house of stone."

The kindergartner can easily make up such little songs, whilst the children are building; they are, of course, not meant to be any thing but a playful expression in song on the work just finished or still being

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done. So, for another example, when building a bedstead, the children may sing:

> "Our Kate (Frank) shall sweetly sleep to-night,
> If she (he) has done what's good and right."

Several children uniting can build cities, villages, farm-yards, etc., etc.

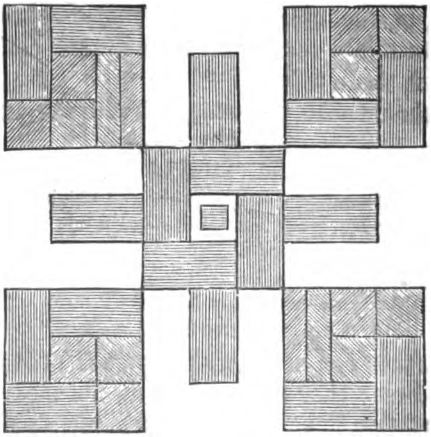
How should the forms of beauty be introduced?

The preliminary exercises should always consist in letting the children find out: how two bricks or parts of the cube may be joined together; *then* proceed to *enclose space* with three, four, five, or six equal pieces; compare each with similar figures constructed with other pieces, as, for instance: one formed of three square bricks, one formed of three pillars, and one formed of three bricks.

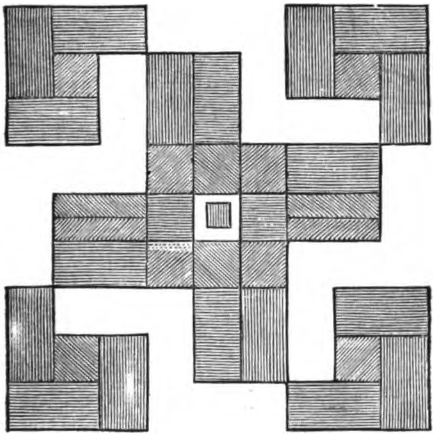
If the kindergartner succeeds in combining *artistic* and tasteful designs with *geometrical* forms, thus finding transitional forms—leading from one series to another,—she will secure additional interest. Although the artistic forms of this Gift cannot be produced equal in beauty to those of the Fifth Gift, yet these materials offer a vast field. The starting or central form should be very exact.

The central piece of the *four-sided forms* is made of two pillars placed perpendicularly one upon the other, or the lower pillar may stand and the other be laid horizontally upon it.

54.



55.



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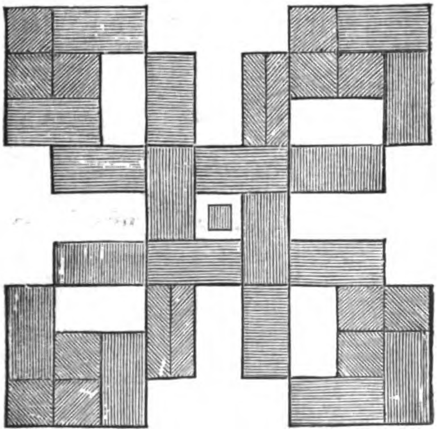

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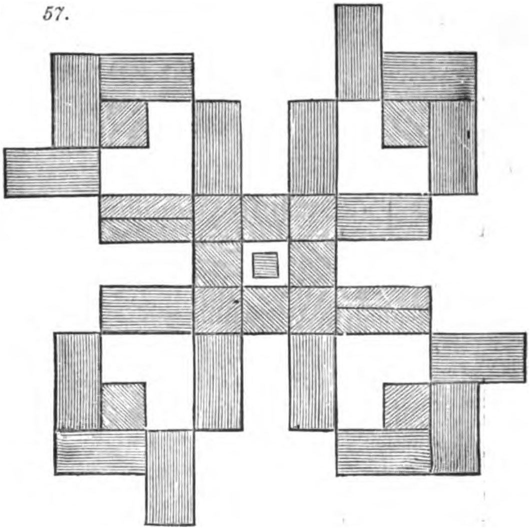
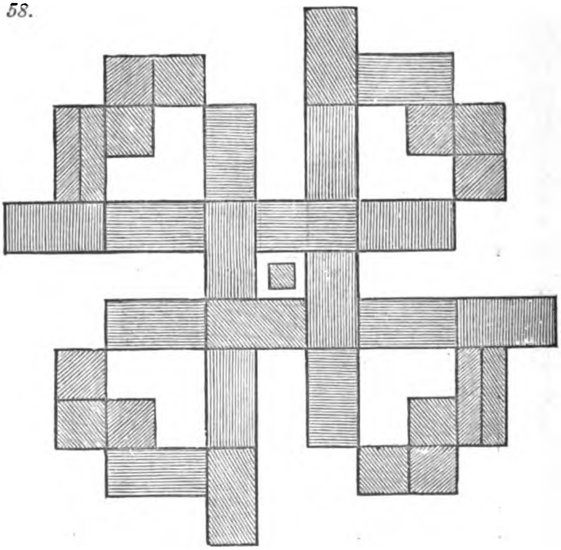


58.



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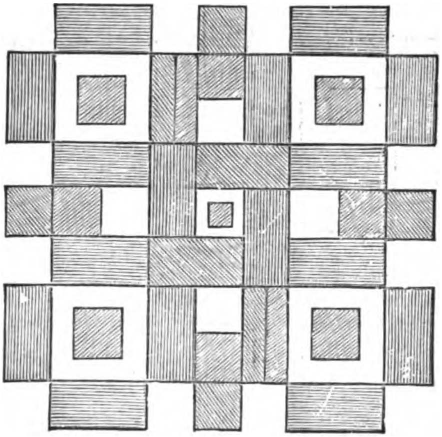

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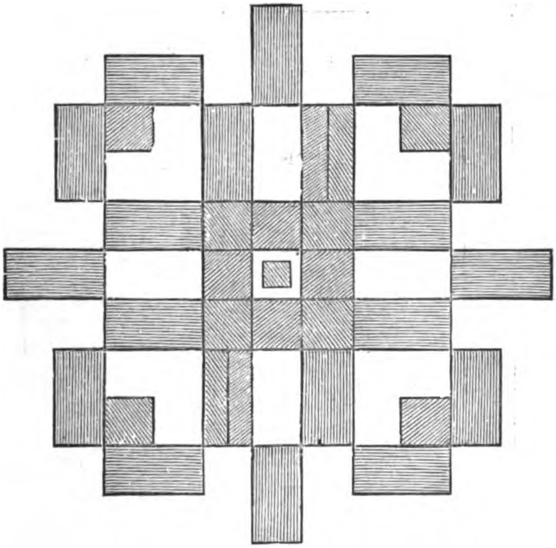

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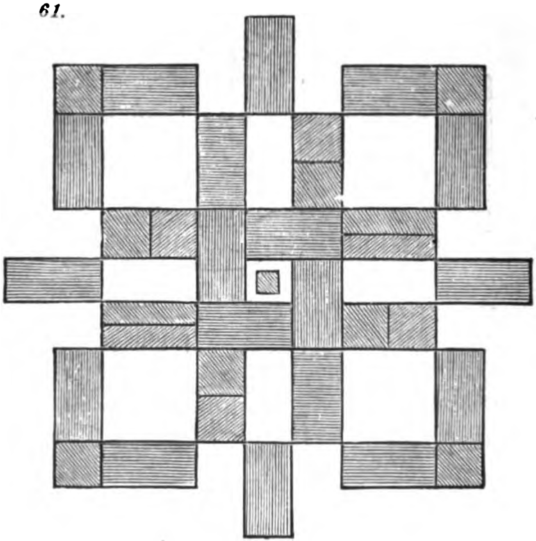
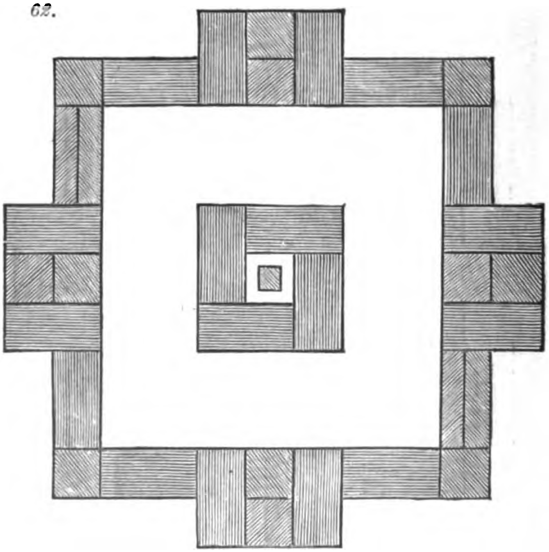
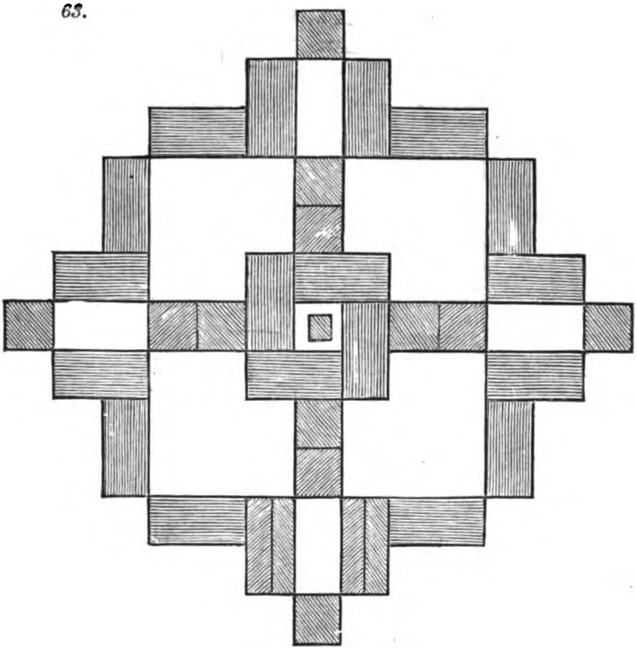


62.



63.



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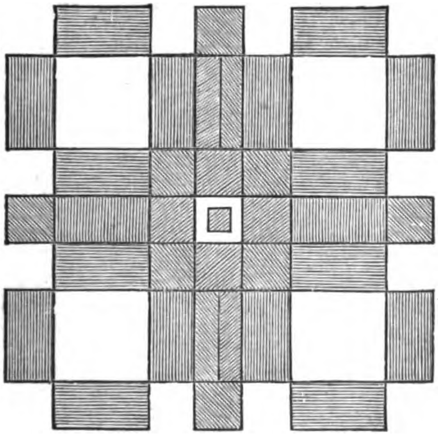

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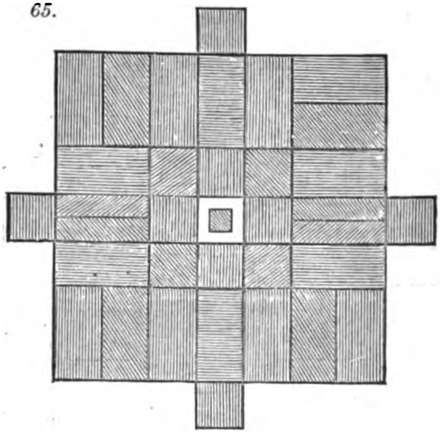
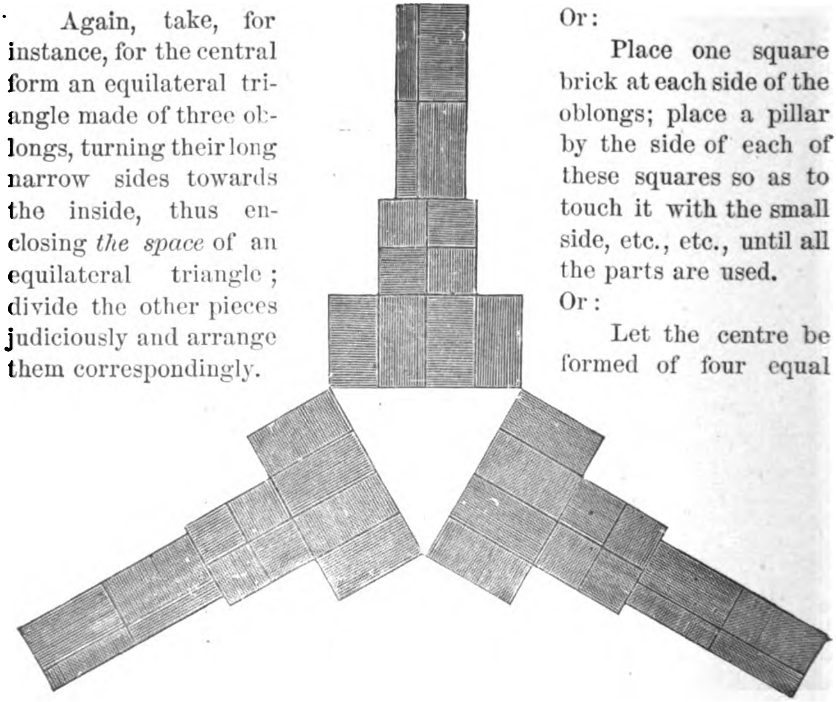


66.



Again, take, for instance, for the central form an equilateral triangle made of three oblongs, turning their long narrow sides towards the inside, thus enclosing *the space* of an equilateral triangle; divide the other pieces judiciously and arrange them correspondingly.

Or:

Place one square brick at each side of the oblongs; place a pillar by the side of each of these squares so as to touch it with the small side, etc., etc., until all the parts are used.

Or:

Let the centre be formed of four equal

parts enclosing the space of a square, and build out systematically from this: if a brick is added above, a similar one should be added below, on the right as well as on the left side, etc.

Or:

With five equal pieces enclose the space of a pentagon.

Or:

With six equal pieces enclose the space of a hexagon, building on symmetrically from the sides of the central bricks that enclose the space, thus producing beautiful three-, four-, five-, and six-sided stars—the last-named giving an idea of the snow-flakes. These forms can also be moved in their different parts and changed progressively from one into another. The three-sided forms may easily be changed into six-sided forms, as, for instance:

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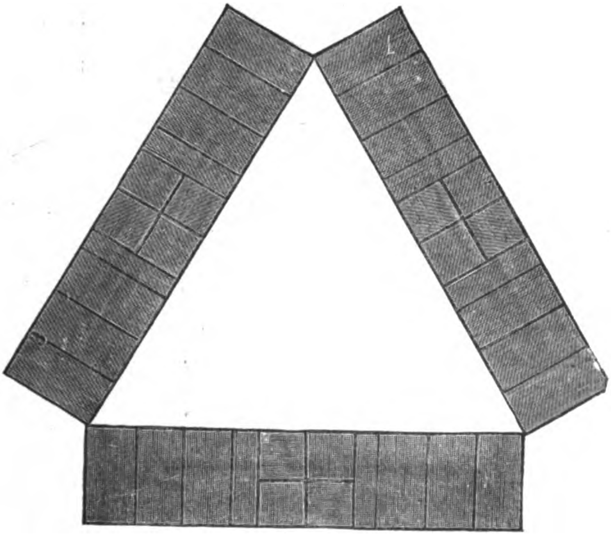

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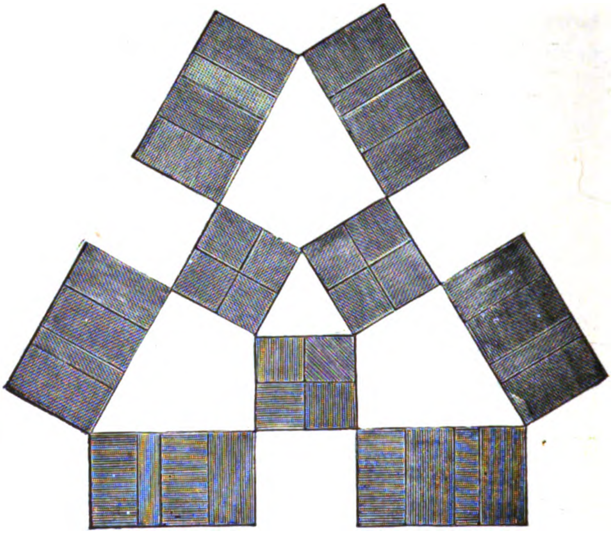

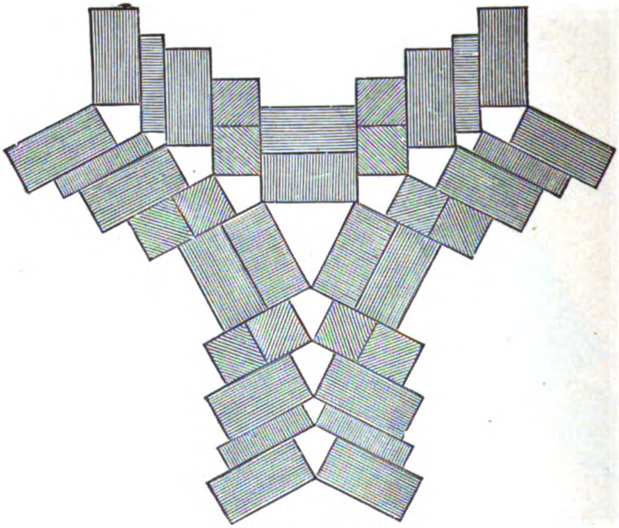

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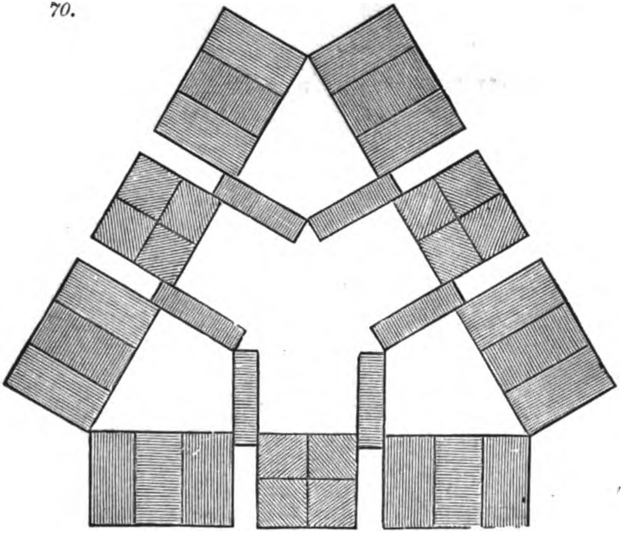

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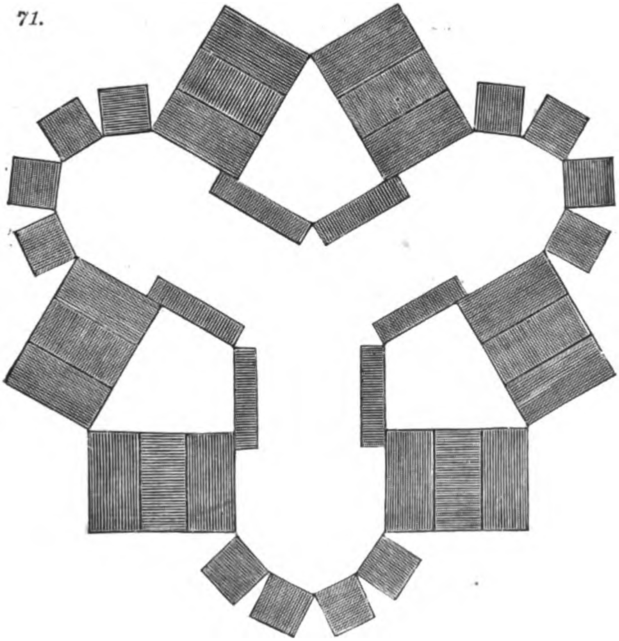

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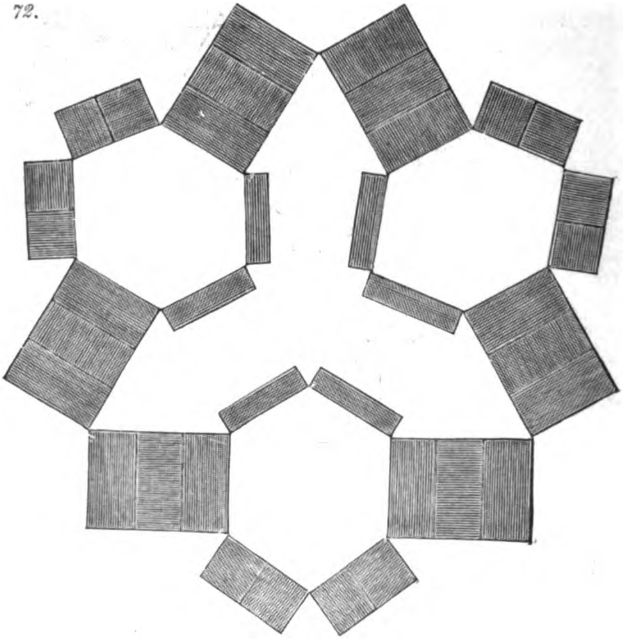

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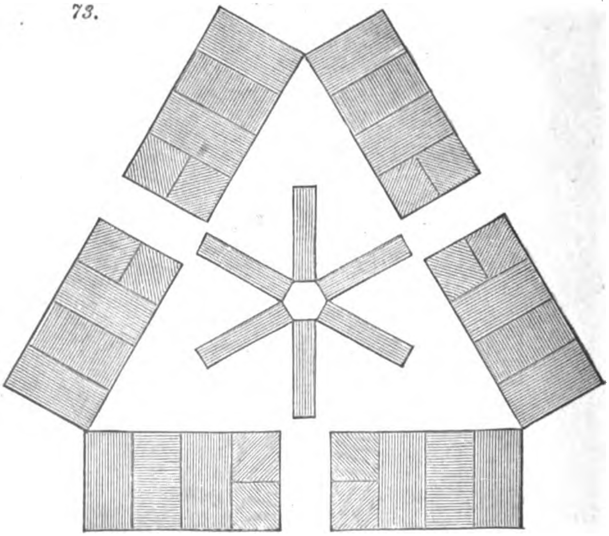

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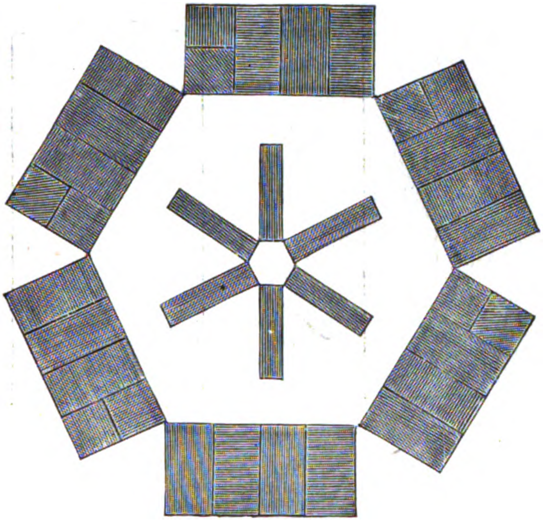

and the six-sided again into three-sided forms.

The four-sided form will remain four-sided, but can also be changed into a two-and-two-sided form. The five-sided form may be made ten-sided; but in all these changes the *central* or starting form remains unchanged.

Another change can be made in these forms by placing the bricks, squares, and pillars upon their long and narrow surfaces, or on their smallest faces, instead of laying them flat on the table. In this way effective forms can be produced.

How should the forms of knowledge be developed?

The preliminary exercises have already been pointed out at the beginning of this chapter, and also in the forms of beauty. Let the child find out *how many different kinds of oblongs* can be made with the different parts of the Sixth Gift.

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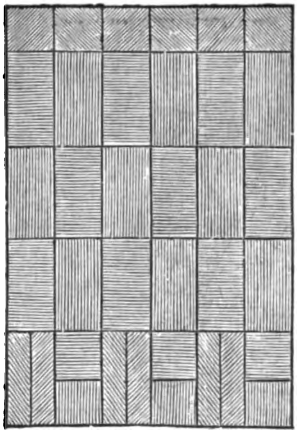

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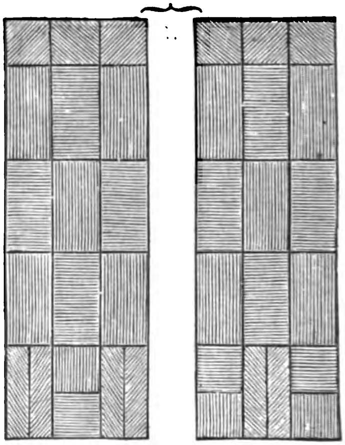

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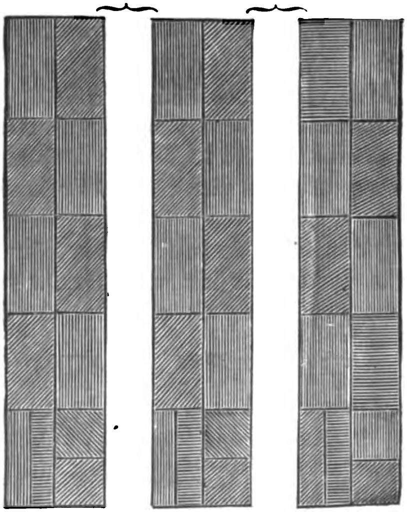

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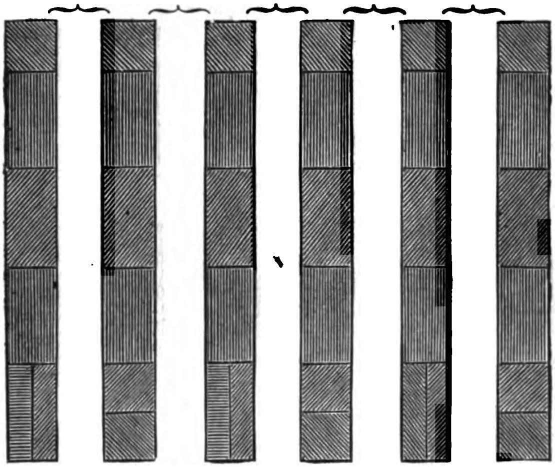

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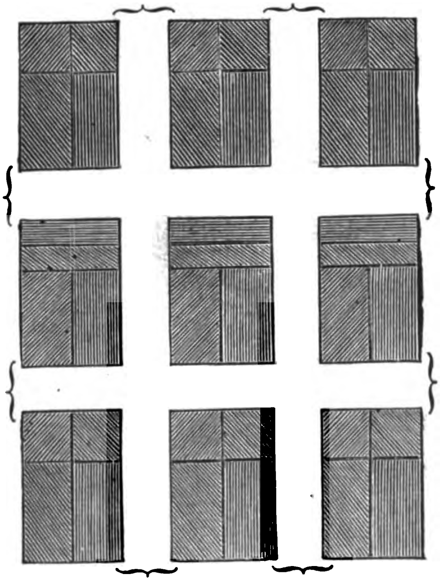

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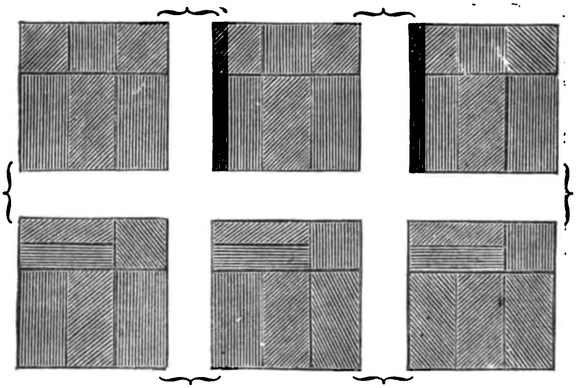

Let the child find out, *how many different kinds of squares* can be made with the different parts of the Sixth Gift.

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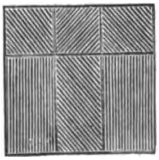

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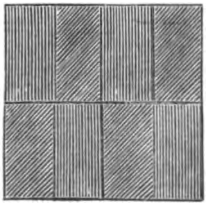

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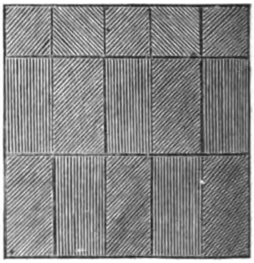

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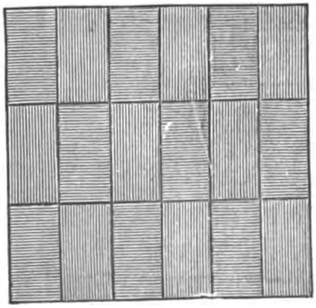

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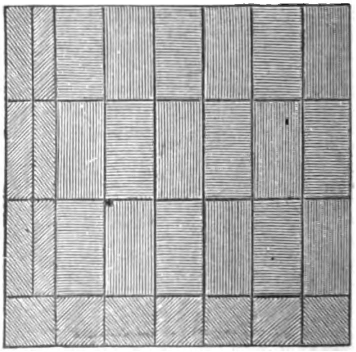

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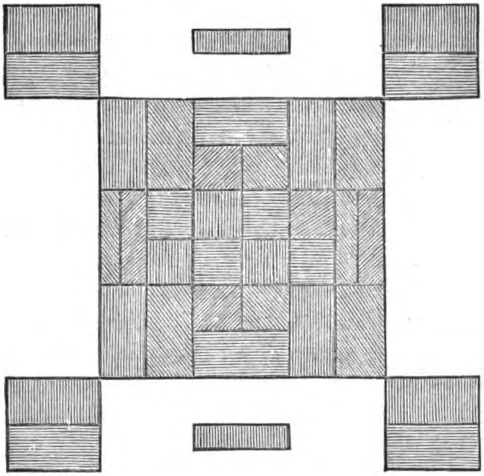

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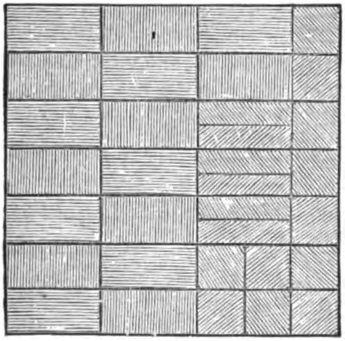

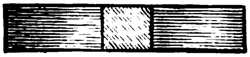

Let the children find out, also, how many kinds of triangles, squares, pentagons, etc., can be *enclosed.*

The oblongs or bricks of the Fourth Gift were capable of three different positions; the parts of this Gift, also, may lie down, or stand, or sit—as the child terms it—on their different surfaces, so as not only to give a very different appearance to the same form, but also to make the forms of a threefold kind.

The different parts of this Gift serve, also, in measuring length, breadth, and height, and in this capacity it proves also to be a capital teacher of arithmetic.

By the absence of slanting (inclined) surfaces and edges, as well as obtuse and acute angles and corners, the forms of this Gift are confined to squares and oblongs. The instructive part in Frœbel's Gifts and Occupations consists in this, that the different kinds of material offer an opportunity to make similar observations — though under changed conditions, whereby a uniform and tiresome repetition is avoided, and new interest is ever awakened; this accustoms the child to find unawares the similar in the dissimilar, the homogeneous in the heterogeneous, unity in manifoldness, the connected—coherent—in the apparently unconnected--incoherent.

Other exercises are:

The sides, edges, and corners of the square brick are counted and compared; the same exercise is carried out with the pillar;

the square brick and the pillar are compared with the oblong brick;

oblongs are made of the square bricks, and *squares* of the oblong bricks;

squares are made, for instance, of 2, 4½, 8, 12½, 18, and 24½ oblong bricks; etc., etc.

The forms of *knowledge* of the Fifth and Sixth Gifts can—in the kindergarten—be used for children up to seven years of age only to a limited extent; whereas forms of *life* and *beauty* can always find in these Gifts their full application.

THE SEVENTH GIFT.

THE TABLETS.

In what relation do the tablets stand to the former Gifts?

Mental development begins with the observation of concrete objects, and gradually expands into a comprehension of abstract ideas. To the child the transition, which must take place when it first enters the school, from a life in the concrete world to one of abstract thinking, is very sudden and injurious. Frœbel, in his system, makes this long and perplexing step easy, by acting in concert with the native impulse of the mind.

The object which in the simplest manner includes in itself the general qualities of all things, is the Ball. In the six balls of the First Gift color appears, connected with form. To become acquainted with an object in all its parts, is a necessary condition for clearness of perceptions as well as for the accurate representations through which the foundation for conceptions is gained.

This object, therefore, must be followed by others that give occasion for comparison, which, of course, can only be an immediate perception of things through the senses, such as is found in the first year of life.

In the Second Gift we find at the same time a connection and the greatest contrast with the first impression. The contrast between the sphere and cube is one of form. In order to be able to compare properly, a certain likeness should always be apparent. This connection is found in the cylinder. These three bodies, ball, cylinder, and cube, as ground-forms, or normal forms, allow the qualities of each body, when regarded as a whole, to become known by observation.

The undivided bodies are followed by the divided bodies. Without dividing the whole, and taking it to pieces, a closer observation and more complete knowledge are impossible. The thinking, searching, parting, and dividing processes of the understanding — analyzing —

should be preceded by the taking apart, that is analyzing, of the solid bodies. An arbitrary division, however, can never lead to clear representations; for this a regular, methodical division is needed. Nature shows this every-where. She is always lawful, and exists according to mathematical laws. Frœbel followed Nature in organizing his means of development for the child's mind.

The division of the Third Gift (once in every direction) serves this aim; for the forms of the parts are the same as that of the whole, and only the relations of size make a difference and a step forward. Thus with the different relations as to size, relation as to number is simultaneously apparent, and without these two intuitions a future clear conception—known as an idea—could not be gained.

In the Fourth Gift, we find the difference of form in the parts and in regard to the whole, at the same time in the relation of the surfaces.

The connection of the Fifth and Sixth Gifts with the preceding ones consists in the like form of the whole—the cube—and in the conformity of the manner of division, i. e., inasmuch as the Fifth Gift is the Third Gift doubled—the division being twice in each direction—the Sixth Gift is the Fourth Gift doubled.

The child always begins by merely heaping up some of the parts, just as Nature does in the inorganic world. But clear representations need order, and for this order, Frœbel's law of connecting opposites, offers the simplest guide; besides the different series of forms, viz.: of knowledge (mathematical), of beauty, and of life, correspond, respectively, with the understanding, the heart, and the will of the child.

The child has gained, therefore, real experiences through these Gifts by actually applying, handling, and experimenting with, them. God's works reflect the logic of His Spirit; and human education cannot do any better than imitate the logic of Nature (the beginning of which is found in the forms of crystallization), in order to develop in the human being the inborn capacity of logic.

Up to the Sixth Gift, the material of the Gifts is the same; from the Second Gift upwards, the objects are made of *wood*, and, besides, they are *solid* bodies.

The next step towards spiritualizing the material is the transition to the *plane*.

The simple mathematical ground-forms are given as ***embodied planes*** for ***laying-tablets***.

Thus, Frœbel presents:

first, the solid, already familiar to the young mind, in its external appearances; from that he passes to the plane; from the plane to the line, and so on to the point.

In the preceding Gifts the child has dealt with solids, and made of them miniature houses, chairs, sofas, stoops, etc.

With the tablets the child cannot represent real objects, but only pictures of them. Just as Nature descends from the bodily, the massive (stem, branch, twig, and leaf), to the plane, so also the means of occupation and play in the kindergarten pass from the solid to the plane.

Thus cubes and tablets are opposites whose intermediate is found in the brick of the Fourth and Sixth Gifts.

The tablets used for this occupation are generally made of wood, but they can also be made of pasteboard and covered with colored paper, though the latter is not advisable, as the corners wear off very soon. Usually the tablets are of two colors: blue and *orange*, yellow and *purple*, red and *green*, etc., thus helping essentially to awaken in the child's mind the sense of color, and to still further develop it.

What is the shape of the tablets?

Their shape is of two kinds: *square* and *triangular*. The latter are again divided into four kinds of tablets, viz.: *right-angled isosceles* triangles, *equilateral*, *right-angled scalene*, and *obtuse-angled* triangles.

In what order are the tablets given to the child?

The *square tablets* are first given; and in presenting them to the child, the kindergartner may place them at the sides of a cube of the Third Gift, and, after the relation of the equality which they bear to it is fully understood, she may take a knife and remove them one after the other, just as if each originally formed a part of the cube. Then each child being allowed to take *one* tablet, its faces, edges, and angles are counted, measured, and named. The opposite edges are found to run in the very same direction, and the conception of parallel lines is thus acquired.

1.

After the child has become thoroughly acquainted with *one* tablet and has placed it in different positions, it is allowed to take *two* squares, and to place them first one upon the other, and then in such a manner together that they touch on the edges or sides. Thus the child recognizes

2.

3.

an old acquaintance in the oblong, which, it finds, may occupy a vertical, horizontal, or slanting position. It now examines and compares the parts of this form, which is again compared with the preceding one. These tablets can be placed corner to corner, and corner touching side, each in four different places.

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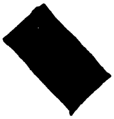

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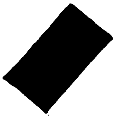

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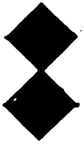

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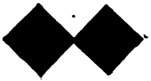

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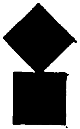

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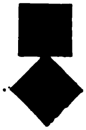

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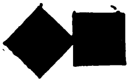

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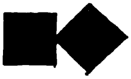

Next *three* tablets are taken, and a similar course is pursued.

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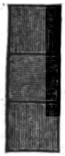

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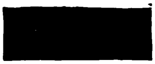

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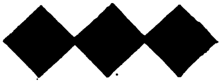

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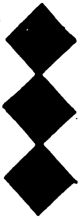

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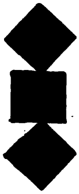

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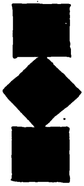

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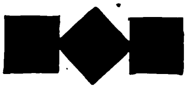

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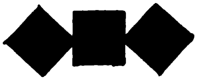

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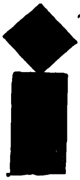

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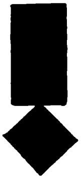

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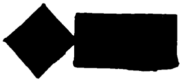

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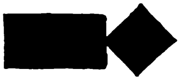

With *four* tablets, a greater variety of forms can already be made; touching on the sides: *one long oblong*—up and down—from left to right; or *two short oblongs* in different positions; or *one large square*.

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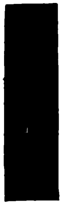

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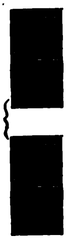

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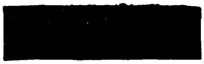

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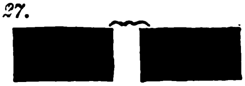

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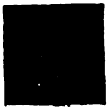

With *six* and *eight* tablets nearly all the forms of the Third Gift may be made, and the child is pleased at finding in a new Gift the familiar forms that it played with in an earlier one.

As the cubes gave plastic forms, so these tablets give the pictures of those forms.

As previously mentioned, the tablets are often of different colors on the two sides, so that they can be used also for representing mosaic, and producing so-called kaleidoscopic forms.

What kind of forms can be made with the square tablets?

1—Forms of *knowledge* or mathematical forms,
2—forms of *life*, and
3—forms of *beauty*.

What kind of forms of knowledge can be represented with the squares?

Squares and oblongs of different sizes.

Attention should be drawn to the fact that, however the tablet may be placed, the angles always remain right angles.

28.

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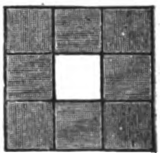

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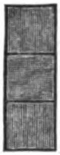

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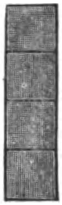

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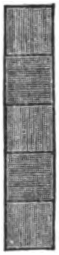

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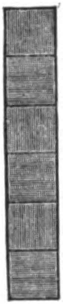

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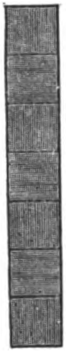

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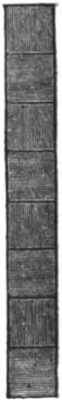

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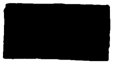

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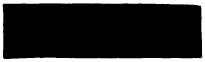

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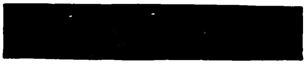

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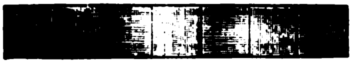

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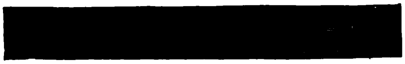

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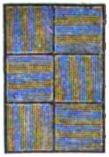

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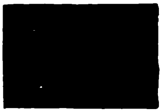

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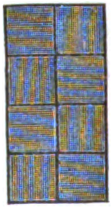

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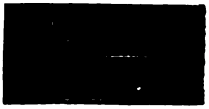
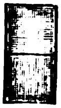


How are the forms of life introduced?

With two tablets touching on the upper and lower sides or **edges,** we have:

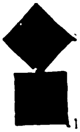
49.



a door, or

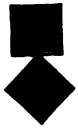
a window.

50.



Place one square straight before you, and the other above, touching the lower one with a corner, and the form will represent a flower-pot.

51.



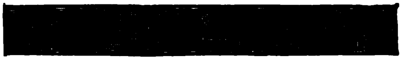
Reverse this, and place the top tablet square, and the lower one cornerwise, and there is a clock with pendulum, etc., as seen in No. 9, and so on, until all possible positions of the two squares are exhausted.

The kindergartner bearing in mind the experiences with the former Gifts, proceeds slowly, according to the necessity of gradual combination and the inner desires of the child. She repeats, explains, has the same thing observed in various objects and under changing circumstances, or she gives either directions or permission to make new forms of knowledge, forms of life, or forms of beauty.

The number of these forms being limited, the quantity of squares is soon increased until the number eight is reached.

Place the eight squares from right to left and form a long plank.

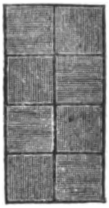
52.



53.

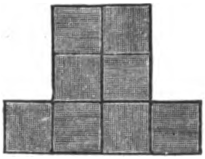
Divide this equally, and place one half above the other, thus forming the picture of a low wall.

54.



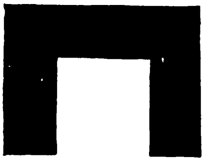
Place the two squares of each side above, and the high wall appears.

55.



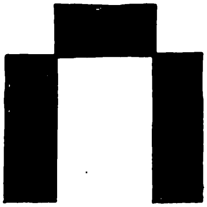
Take the two top squares of No. 54 and place them below, one at the right and one at the left side of the form, which will now change into the representation of a hat.

56.



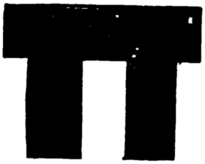
Take now the four upper squares and place them below, two at the right and two at the left side, and there is the rustic table.

57.



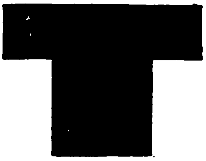
Move the two central squares one inch upwards, and the gate is represented.

58.



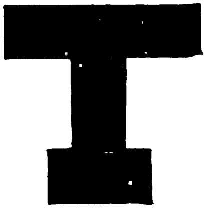
Form the rustic table again and move its legs half an inch towards each other, and there is the kitchen table.

59.



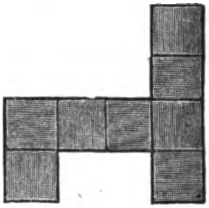
Move the legs of this table close up to each other, and the form will represent an altar.

60.



Place one of the legs in the middle, and lay the other below from right to left, and the parlor table is made.

61.

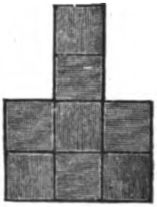


Place the foot of the table, that is, the two lower squares, above on the right-hand side, and move underneath this the two squares forming the leg of the table, one to the right, the other to the left side, and the chair is finished.

62.

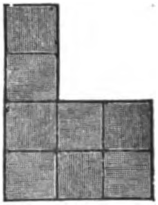
Place the back of the chair below from right to left in the space between the legs of the chair, and (see No. 53) we have the low wall or a floor.

63.



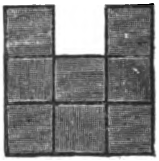
Make a monument by placing the two right-hand side squares above and in the middle.

64.



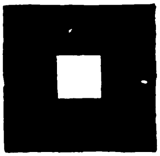
Remove the pillar one square towards the left, and we have the church.

65.



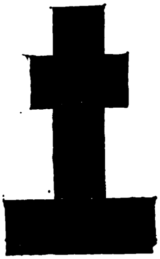
Place the upper left square at the right side, and you see a country-house.

66.



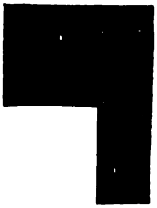
Move the upper middle square one inch upwards and we have the picture-frame.

67.



Place three squares touching on the sides from left to right; place above them, on the middle square, two squares up and down; above these lay two other squares from right to left, and in the middle above these, one more square, and the cross with base is shown.

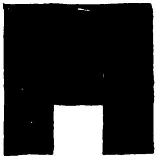
68.



A flag is represented by making an oblong of six tablets from right to left, two by three square inches, and placing the two remaining squares below, up and down, on the right or left hand side—to form the flag-staff—locating this according to the direction from which the child supposes the wind to blow. This suggests at once the song of the "hand and wrist game" of "the weather-cock":

> "Like the weather-cock I'm going
> While the gusts of wind are blowing,
> I can turn my wrist and hand,
> As the best vane in our land."

69.



Take the lower one of the two squares forming the flag-staff, and place it opposite the other square, below the other end of the flag, and you see an old-fashioned bureau; etc.

The kindergartner or mother should proceed slowly and carefully. The number of forms of life, that can be made, is very limited.

When the children have laid several forms, the kindergartner talks about them and makes her remarks, draws remarks from the children, or tells them a story in which the different objects made by the children will be mentioned, except those which have been carelessly done. At another time she may ask the children: "Do you remember what kind of a form your tablets have?"

"A square form."

"How do you know?"

"By the four equal sides and corners."

"What makes the corners?—look round the room—where do you see a corner?"

"Where the walls meet?"

"Well, see, here two sides or edges of the square meet in a corner. Who remembers what the four sides of our tablets were called?"

"Edges, or lines."

"Then we may also say, wherever *two lines* meet, we have a corner. Now look at the corners of the room, and also at the corners of the square, and tell me, are they alike?"

"No, they are different; for one is a hollow corner and the other a square corner; I can place my finger into the one, and the other is outside and feels sharp."

"Therefore we call the one an outside corner, or simply a *corner*, and the other an inside corner or an *angle*. See here, when I am passing my finger along these two edges of the tablet, I am touching at the end, where they meet, the corner; and if I pass my finger inside on the plane, I find an inner, or hollow corner, that is an angle. See now what kind of lines touch in the corner of the square?

"A line from the left to the right, and a line from the top downwards."

"Well then: where a line from the top downwards or a line from the left to the right side touch, we have a corner that we call an angle—a square corner and a right angle. Now—how many right angles can you count on your tablet?"

"Four."

"Show me such right angles somewhere else in the room."

The child makes an important step in knowledge by this acquisition.

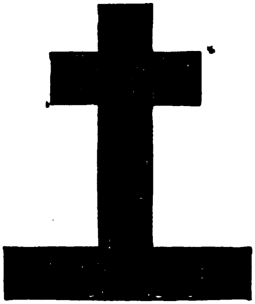
May several children work in union with the tablets?

Certainly, after they have learned to master the material to some degree.

How many tablets are given to each child ?

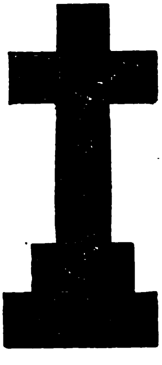
In the kindergarten each child receives at first a small box containing eight squares. As a rule, not too large a number of tablets should be given to the child: for the little one would lose interest when confused by receiving too many things, at a time.

70.



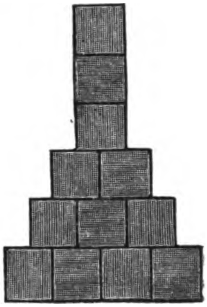
By and by, though, larger boxes, containing a greater number of tablets, may be given. With these, a large number of forms of life can be made. Thus, for instance, 12 squares may be employed as follows: Make an oblong from right to left of five squares: place above this, resting on the middle square, an oblong, up and down, of three squares and lay at the top of this another oblong of three squares stretching from right to left, finally touching the middle square of this oblong a single square, and the cross is made.

71.



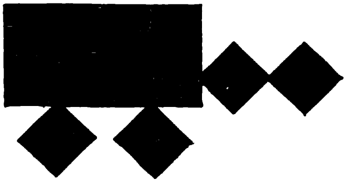
Change this, so that the foot of the cross is supported first by an oblong of two squares stretching from left to right, and place under this another oblong of three squares in the same direction.

72.



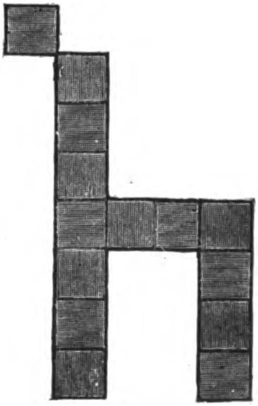
Change this cross into a monument.

73.



Or make a wagon.

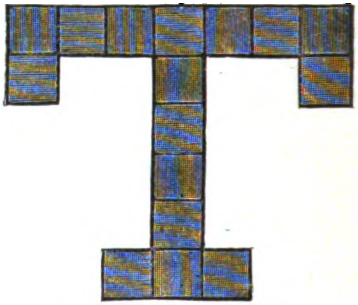
74.



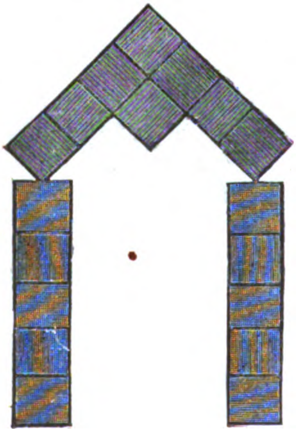
Of fourteen squares make a chair.

Of sixteen squares make a table.

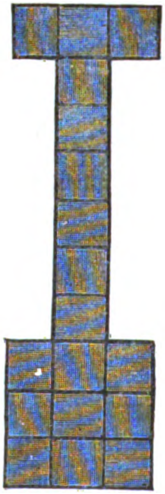
75.



76.

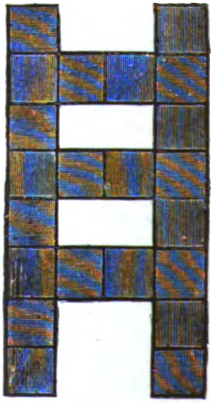


77.



Of eighteen squares make a gate, or a spade.

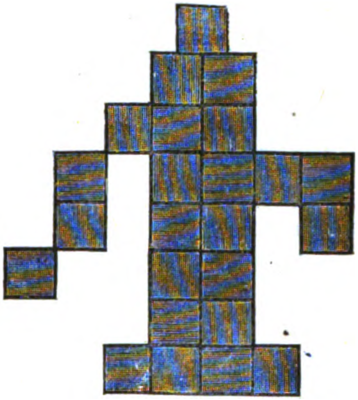
78.



Of twenty-two squares make a ladder.

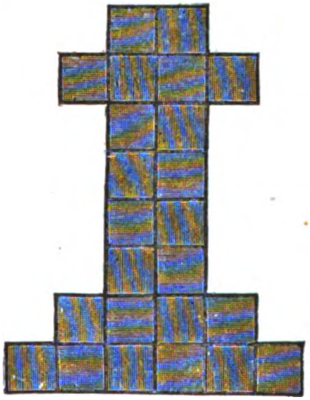
79.

Of twenty-four squares make a pump,



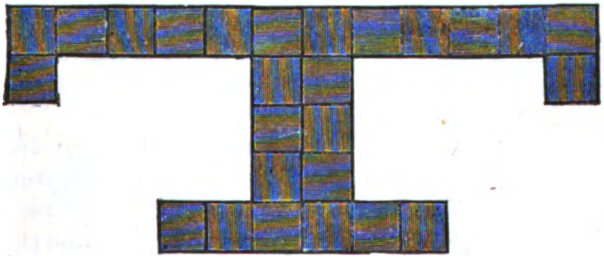
80.

a cross, etc.

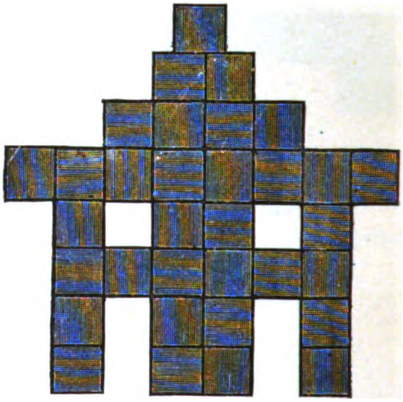


81.

Of twenty-six squares make a table, a gate, etc.

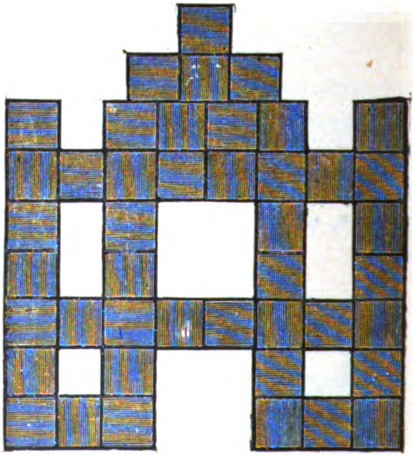


82.



Of thirty-three tablets make a house.

83.



Of forty-four tablets make another house, etc.

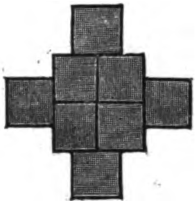
The forms of life, of course, can be various, though in comparison with the forms of beauty, their number is limited.

In what manner are the forms of beauty constructed?

Like those of the Third Gift.

Four square tablets are joined to form the *middle* square, and the remaining four tablets are placed symmetrically around it, either touching on the sides, or corners touching sides, or corners touching corners; they are moved methodically to the left or to the right.

84.



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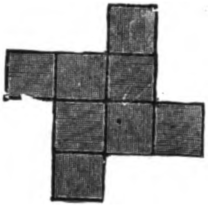

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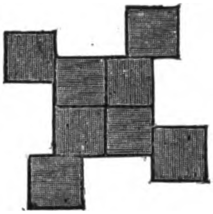

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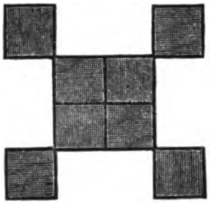

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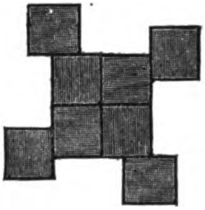

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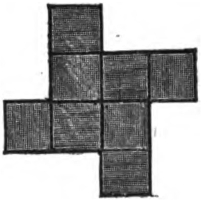

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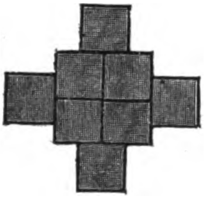

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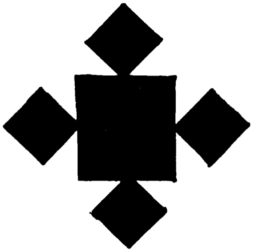

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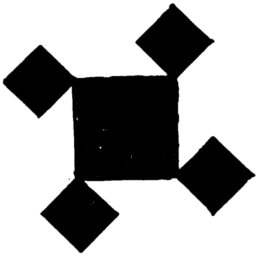

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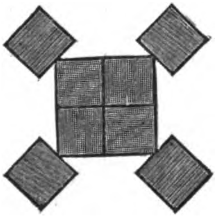

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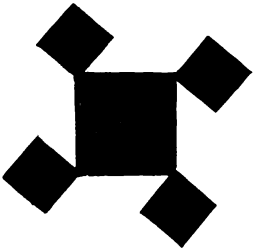

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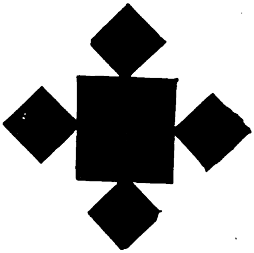

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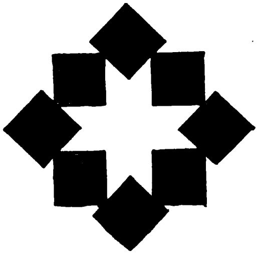

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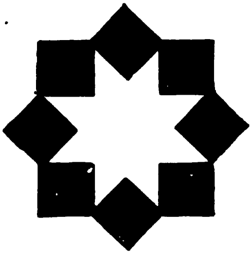

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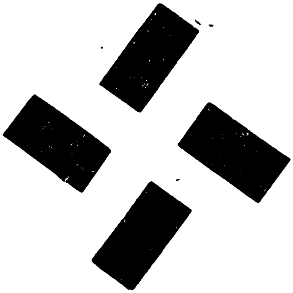

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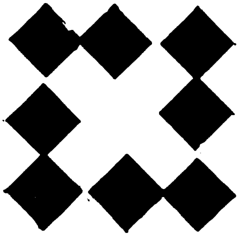

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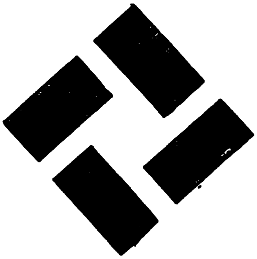

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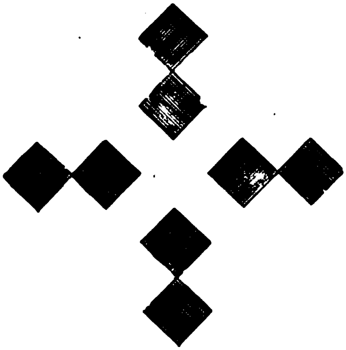

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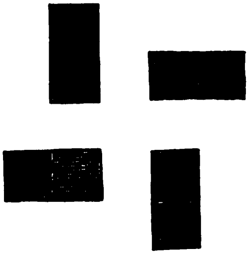

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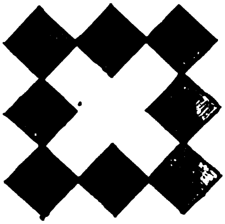

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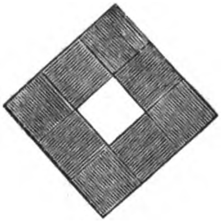

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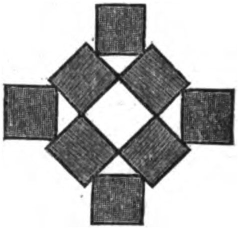

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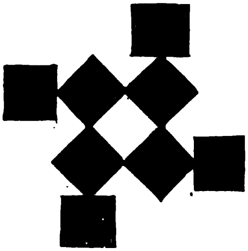

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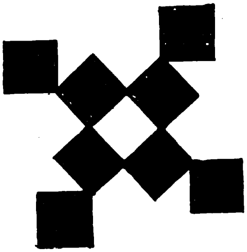

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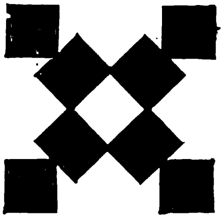

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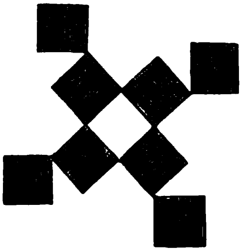

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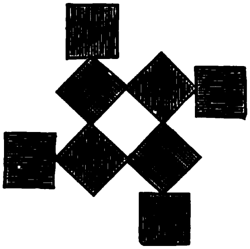

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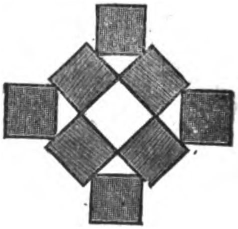

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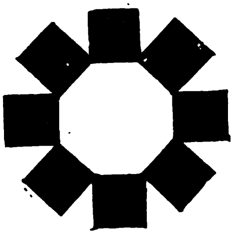

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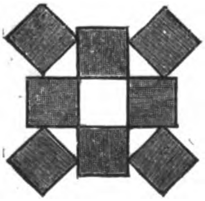

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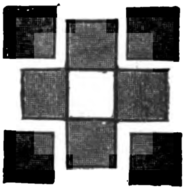

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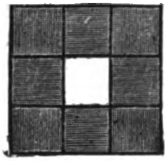

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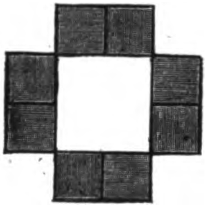

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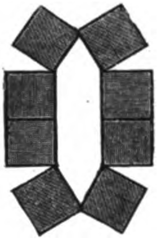

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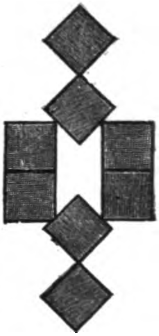

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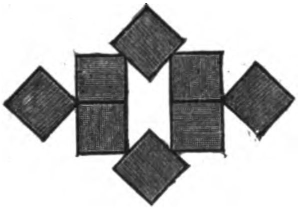

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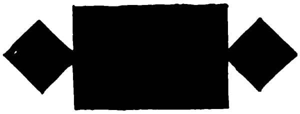

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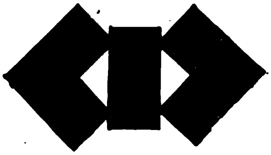

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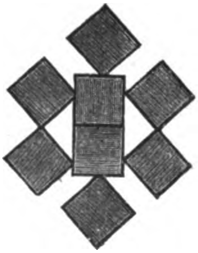

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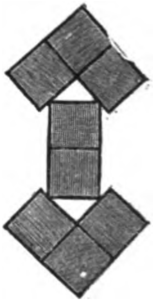

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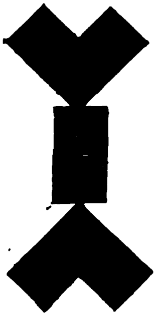

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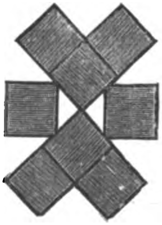

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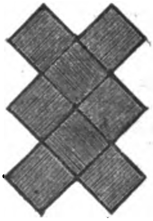

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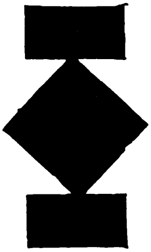

After the use of the square tablets is thoroughly understood, the *right-angled isosceles triangles* are introduced. As the square tablets correspond with the Third Gift, so the right-angled triangles correspond with the Fifth Gift in logical sequence, that is, by the diagonal division of the cube or square.

On joining two of the right-angled isosceles triangular tablets into a square, it will be at once seen that the two, united on their base-lines, are together equal in size to one of the square tablets; and it will also be evident, that each one of these triangular tablets is exactly half the size of the square now formed.

How are these right-angled isosceles triangles introduced?

The child is given four such triangles. Then it is led to examine one triangle carefully, and asked suggestive questions in regard to its form.

This triangular tablet is found to be three-sided: two sides or edges, as the children call them, are equal, and one is longer. The angles or corners are also three in number—the larger is known to the child as the right angle or corner in the square; the other two are equal in size, but smaller than the right angle, and are called sharp angles, or pointed corners, at first, on account of their pointed shape; by and by the child may learn the mathematical name "acute."

The longest side or edge is found to be opposite to the right angle, and is called the "base-line." On measuring the edges of one of these tablets, the child will tell you that two edges are each one square long, and that the other edge is longer. Also, that two of the acute angles of this triangle are together equal to one right angle, or, that one of the acute angles is half the size of the right angle.

At first, the child may place the tablet on the table with the base-line towards itself; and will compare it, perhaps, to a mountain; in this case the kindergartner has an opportunity to converse about mountains.

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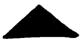
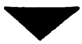


Then the tablet may be turned with the base-line away from the child, who will compare it to a funnel or a dish—or to something else that its fancy suggests.

129.



Or the triangle may be turned with the base-line towards the right or the left side.

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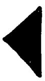

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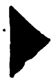

The tablets may also take the four different positions of the limbs in the "Series of Drawing," etc.

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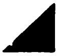

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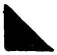

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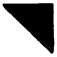

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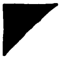


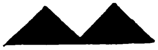
Then the child receives two tablets.

By placing them with the base-lines together the square is formed with its four equal sides, and four equal angles and corners, two of which are divided by the line which joins the tablets, and the child's mind grasps the idea that the two sharp or acute angles together are equal to the larger or right angle—a geometrical fact with which older persons who have not had this special training, are often puzzled.

136.

The child finds out all the different positions which the tablets may sustain to each other, and the kindergartner connects instructive conversations with the various forms. For instance: when the two tablets are so placed as to touch each other at the sharp points, the base-lines turned towards the child, the form may be called "two mountains," and the kindergartner tells the child of the valley between.

137.



All the children may join their tablets in this way, and thus a chain of mountains is produced, with valleys between the slopes.

By joining two of these tablets on the shorter sides or edges, the right angle of each touching an acute angle, the rhomboid is made with its two long, and two short sides parallel, and its four angles or corners: two blunt or obtuse, and two sharp or acute.

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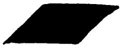

Or the two tablets may be so joined on their short sides that the two right angles meet, forming one right-angled triangle double the size of the single triangle.

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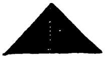

The child is led to make as many different forms with two triangles as can be found; for instance, turn one triangle with the base-line from the child, the other towards it, the right angles touching—and there is the hour-glass.

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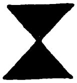
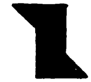


Such forms may be best found by joining two triangles so that the line of division appears slanting from the left side above towards the right side below;

141.

moving the right-hand side triangle half the length of the base-line slanting upwards towards the left, the child will liken this form to a bird's head, probably.

142.



Move the same triangle again as much upwards towards the left, and the two triangles will be found to touch in the sharp corners.

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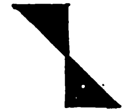

Move the same triangle an inch downwards on the left side of the other triangle, and we have the rhomboid; the right angles are lost, instead of which appear larger angles or corners (blunt or obtuse ones), each consisting of a right and an acute corner or angle, and the child will perceive that this obtuse angle is half as large again as the right corner or angle.

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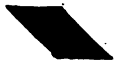

Moving the same triangle an inch downwards, the right angles of the triangles will touch, etc., until finally the second triangle is moved back into its original place, and the square again appears.

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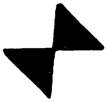

Then follow exercises of a simple kind with three and four triangles.

For instance, with three triangular tablets a chain of mountains may be made.

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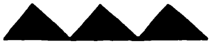
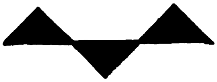


Invert the middle one, and it may represent, in the fancy of the child, a bird flying, or whatever the child with its vivid imagination may be pleased to fancy.

147.



Invert the right and left tablet, and the form may represent the trimming for a dress.

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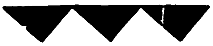

Turn the middle triangle again over its base-line, and the form may represent a pair of scales.

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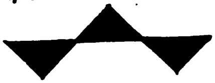

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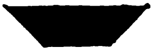

Push the three triangles so together that they touch in their short edges, and the form shows a boat.

The children may now sing:

"Glide along, my bonny boat,
While we with the current float,
Chanting to the sea-bird's note,
Glide along, glide along,
My bonny, bonny boat."

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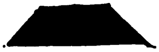

Invert the boat, and it represents the roof of a house.

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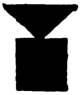

Form a square of two triangles, and place the third upon it with the right angle touching the square; this may represent a flower-pot, or a coffee-mill.

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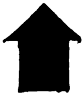

By placing the upper triangle so that its base-line touches the upper edge of the square, we have a little cottage.

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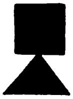
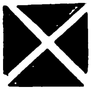


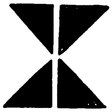
Place the upper triangle below the square, touching the lower edge of the square with the right angle, and the form gained may represent a wine-glass, etc.

With four tablets the figures of the "Series of Drawing" can be followed out, and four children joining together may make their combinations very effectively.

155.



156.



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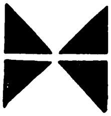

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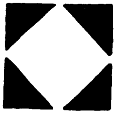

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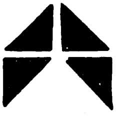

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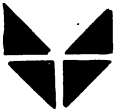

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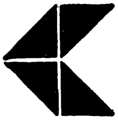

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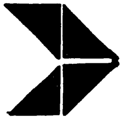

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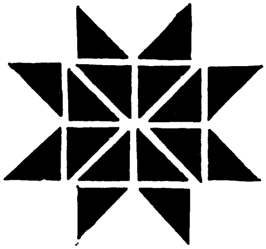

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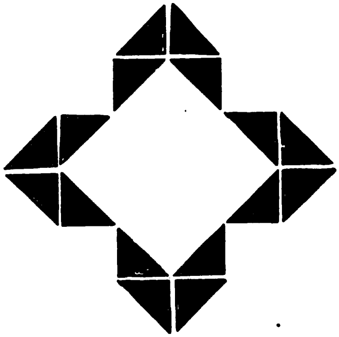

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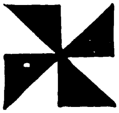

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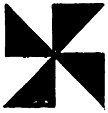

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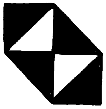
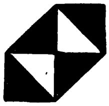


168.

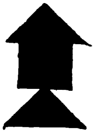


With a large number of tablets, each child can make many more forms—pictures of what it sees around, viz: boats, towers, houses, urns, vases, different forms of "Paper-folding", etc.

By combining the forms of *knowledge* (or geometrical forms) very beautiful stars and designs can be produced by the little hands.

Never allow the child to feel that it is being *taught*. Endeavor to give the instruction in such a manner that the child imagines itself to be merely playing. Thus the time passes swiftly and pleasantly to the child, while at the same time it is kept busy and develops its dormant faculties in all directions. When signs of weariness are showing, discontinue the lesson, and change to something else.

169.



The kindergartner has ample opportunity to impress upon the minds of the children much valuable information by discussing the various forms produced by their work. For instance: a pigeon-house is laid with the tablets, and the children burst out singing:

"We open the pigeon-house again,"

and they may be led in imagination to watch the bird-house, to note the watchful, tender love of the parent birds, and the happy contentment of all the gentle inmates.

Then another picture may be given by referring to the storks, and the beautiful devotion of the younger ones to those which are too old and feeble to depend upon their own exertions.

This will arouse in the little hearts a finer sense of the mutual relations between childhood and old age and perhaps reveal to some the divine law of love which finds its truest expression in the spirit of self-forgetful helpfulness.

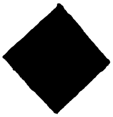
Ruskin, whose own heart is so filled with the reverence due to the helpful heart, says, that in the contemplation of the manifold and unceasing ministrations of the Universe to the delight and use of man, he would almost change the "Holy, holy Lord" of the church-service to "Holy, helpful Lord."

The children themselves are encouraged to tell stories about the forms they make. In guiding them, and seizing every opportunity that offers, to impress a moral lesson *without moralizing*, the kindergartner finds ample occupation.

How are the forms of knowledge developed?

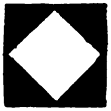
The first exercises have already been indicated. Joining four triangles you can gain the following forms:

170.



A square, by placing the right angles to the centre;

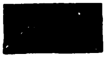
171.



a hollow square, by turning the right angles over and making them point outwards;

an oblong, the sides of which are twice as long as its ends, by joining together two squares, each made of two triangles;

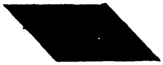
172.



173.

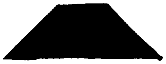
a rhomboid by making a square of two triangles and placing on its right and left sides each one triangle: the triangle on the left-hand side touching, with its right angle, the upper left-hand side corner of the square, and the right-hand side triangle touching the lower right corner of the square, with its right angle;

174.



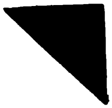
a trapezoid, by changing the left-hand side triangle of the former form, so that its right angle touches the lower left-hand corner of the square.

175.



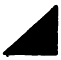
a large right-angled triangle by moving the right-hand side triangle to the lower edge of the square, its right angle touching the lower right-hand corner of the square.

176.

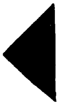


With these triangles the child's idea of form is developed, and many points of similarity and dissimilarity to the square tablets are traced. Different sizes of similar forms are brought to the child's observation, and forms similar to one of the triangles may be produced by using two, four, or more tablets, a fact which will interest the child, who notices that although the *shape is the same*, the size is increased two or four times, etc.

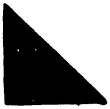
177.



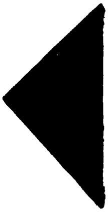
178.



179.

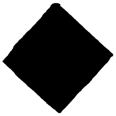


180.



181.

182.



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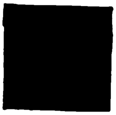
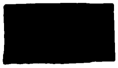
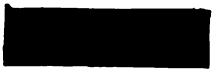


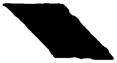
184.



185.



186.

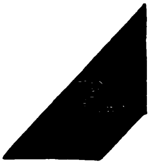


187.

188.

189.

190.



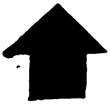
How are the forms of life carried out?

The rules given for building should also here be adhered to, the difference being, that when using the blocks we seemed to have the objects themselves, and now we have only the images of the objects.

The beginning of these forms has been already indicated.

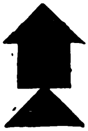
With four triangles form a little house: place on the top of a square made of two triangles, a triangle made of two other triangles, and let the base-line of this triangle touch the top of the square.

191.



Form a pigeon-house, by placing one triangle with its base-line so as to touch the top of the square, and putting the other triangle below the square with its base-line towards you, its right angle touching the lower edge of the square.

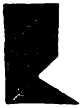
192.



The following forms also are made of four triangles:

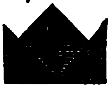
a boot,

193.



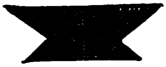
a crown,

194.



a dish,

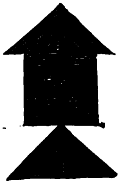
195.



etc.

Form another pigeon-house of eight triangles in this way: make a square of four triangles; place a triangle, made of two triangles, above touching with its base-line the square, and another triangle, formed of two triangles, below touching the lower edge of the square with its right angle.

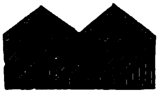
196



Make also the following forms of eight triangles:

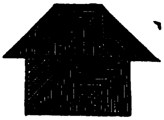
a house,

197.



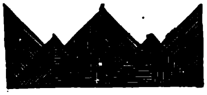
another house,

198.



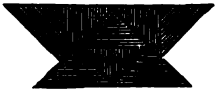
a crown,

199.



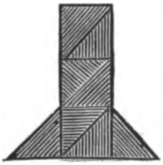
a dish,

200.



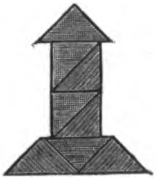
a monument,

201.



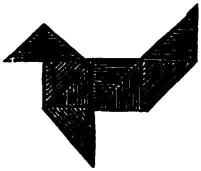
a light-house,

202.



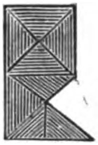
203.

a bird,



204.

a boot,



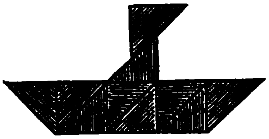
etc.

Thus it will be found that in these forms, also, the child can be led to observe different sizes of similar forms.

With a larger number of triangles very elaborate and beautiful pictures of objects can be made, for instance:

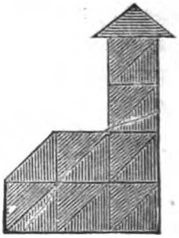
205.

a boat,



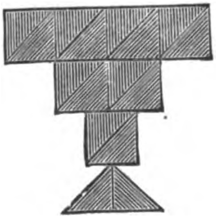
206.

a church,



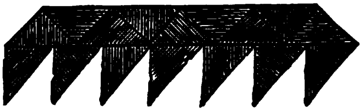
207.

a table,



208.

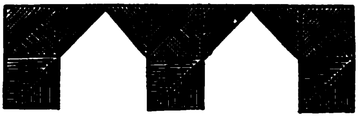
a saw,



209.

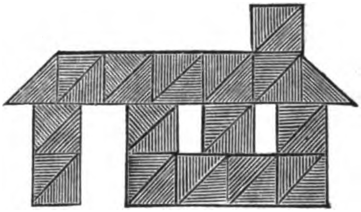
the frame of a slate,
looking-glass,
or picture,

210.



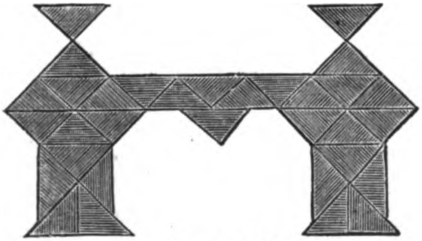
a bridge,

211.



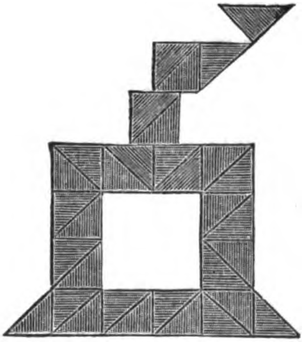
a house,

212.



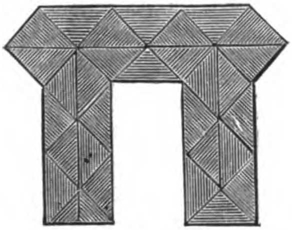
a fire-place with two
vases upon the mantle-piece,

213.



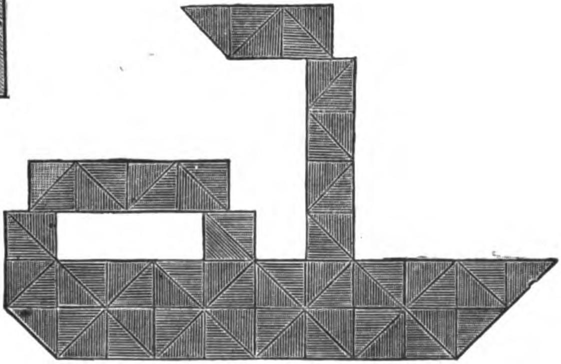
a coffee-mill,

214.



a chimney,

215.



a steam-boat, etc.

In what manner are the forms of beauty constructed?

In making forms of beauty, which are simply symmetrical forms, we must bear in mind the rule: "*Keep the opposites alike.*" The children of the kindergarten are not told any thing of a "law of opposites", but they soon learn, by practical demonstration in the kindergarten, that they cannot make a symmetrical form unless they keep the opposite sides alike. A lopsided form is no more beautiful than a lopsided tree. We know that the only way to bring our tree into symmetrical proportions is to make one side resemble, at least, somewhat the other side. In the kindergarten, the four-sided forms are first made, as the children can comprehend them more readily than two-and-two-sided forms, etc.

Let the square represent the *four-sided form,* and the rectangle or oblong (parallelogram) stand for the *two-and-two-sided form.* In the *turning* figure, which in the kindergarten is often called "the windmill", and which is a favorite with the children, we might say that the opposites are taken *diagonally.* The children soon learn to apply this law to their work, and by this means they are led to do things in a systematic and logical way. They not only will learn *to work* in this way, but they will also learn *to think* in a logical way; for the mind, too, works by this law.

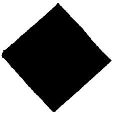
For instance: if we think of *goodness,* the opposite quality, *evil,* immediately presents itself to the mind. We cannot think of *light,* if we have not known of *darkness.* If we think of *white,* which reflects *all* colors,—then we must think of *black,* which absorbs all colors. When we think of *war,* we gladly think also of *peace.* We know a thing is *hard,* because we have already known things that were *soft.*

Without this law, there would be no such thing as a true comparison. Without it, we should not be able to come to any logical conclusion. There *must* be limitation; else, how could we grasp any thing? We should never know that we had a truth, for we should never be able to prove its existence. Our thoughts would be like liquids, never taking any final shape, but always molding to the vessel that contains them. When we have the *opposites,* we have the range of the conception, for then we have by implication all the possible gradations of either side toward the other.

Make the following forms:

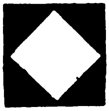
1—Place four triangles together so that they form a square turning one corner towards you — in diamond shape, as the children call it; thus the right angles are all thrown towards the inside.

216.



2—Turn the upper right-side triangle over its base-line, so that its right angle is now outside; do the same with the triangles on the lower left, on the upper left, and on the lower right sides—and we have a hollow square.

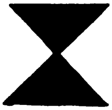
217.



Both these forms are the same as, in our "Series of Drawing", the full and hollow middle-opposites.

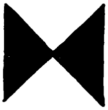
3—Form No. 216 again, and divide it up and down into two triangles, and rejoin these so as to touch at their right angles, and we have a form which is neither "full" nor "hollow."

218.



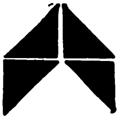
4—Make No. 217 again, and divide it up and down, and by rejoining the parts in what was the upper and lower edge, we gain a form like No. 218, but as it were, lying down. Both, Nos. 218 and 219, form the intermediates of Nos. 216 and 217.

219.



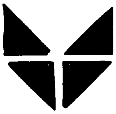
5—Keeping, for the sake of variety, the triangles a little apart from one another, place the upper half of No. 216 on the upper half of 217,—or place the lower half of No. 218 on the lower half of No. 219, and both of these divisions will result in essentially the same form, namely, a form half full and half hollow.

220.



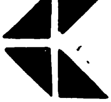
6—Place the lower half of No. 217 on the lower half of No. 216, and the same form as No. 220 is gained, but in the opposite direction.

221.



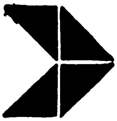
7—Place the left side of No. 216 on the left side of No. 217, and

222.

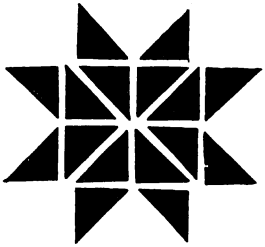


8—Place the right side of No. 217 on the right side of No. 216, and two forms are gained equal to those in Nos. 220 and 221, but inverted.

223.

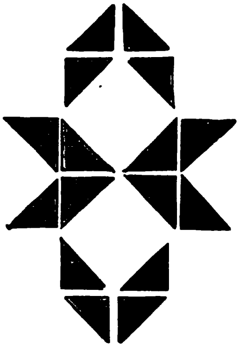


224.



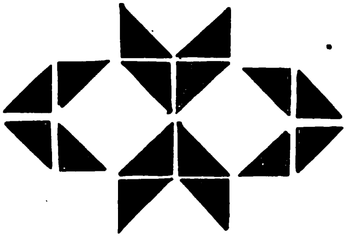
Now, we can proceed to form a star similar to the first star in the "Series of Drawing." Place No. 220 below, No. 221 above, No. 222 on the right, and No. 223 on the left side.

225.

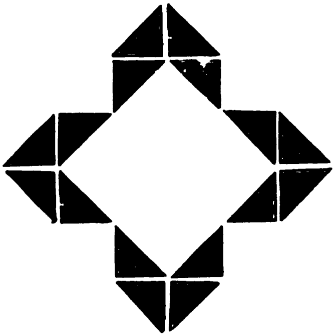


Or, if we change the upper and lower parts, or the right and left sides, of this star, we gain forms which compare with Nos. 218 and 219, being half full and half hollow.

225a.



226.



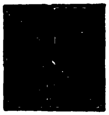
But, if we change the upper and lower parts, and also the right and left sides, we have the opposite of the star—or a hollow star.

If all the children join in placing their stars together, their work is a united and common one, and results in a beautiful combination.

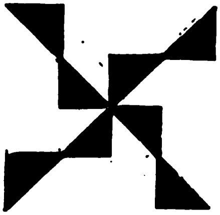
Another process for making forms of beauty is the following:

Join eight triangles into one square, so that the diagonal lines run from the upper right to the lower left corner, and from the upper left to the lower right corner.

227.

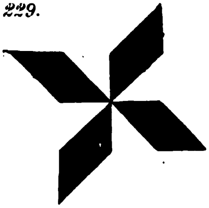


228.



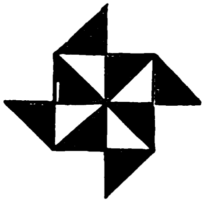
Then move out the upper right-hand side triangle the length of its base-line, and do the same with every other of the three corresponding ones, thus producing a revolving figure.

229.



Then continue to move these four triangles around the central form, until they reach their original places again, that is, until the square is restored, etc.

230.



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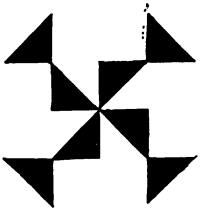

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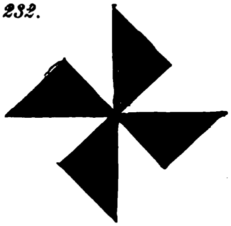

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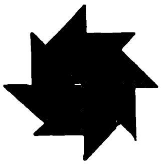
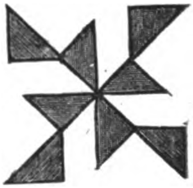


Then reverse the same four triangles, so that one of the short lines of each touches the base-line of one of the other triangles, producing thus the "wheel-form." Now the triangles that did *not* move in the former forms are moved out, revolving around the central form.

234



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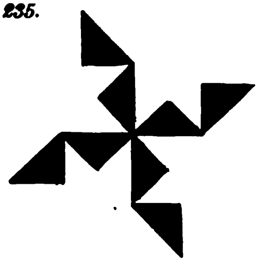

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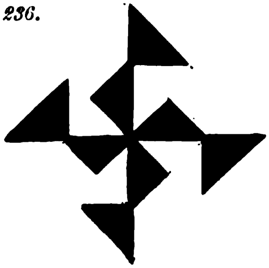

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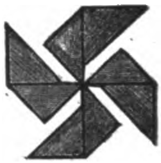
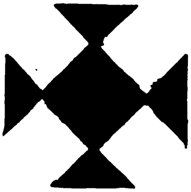
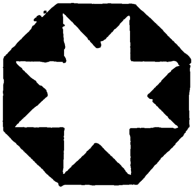


238.



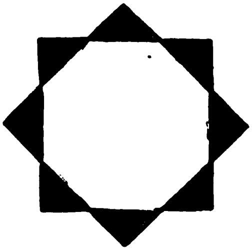
Form a square of four triangles and place it corner-wise before you; join to each corner a triangle with its right angle.

239.



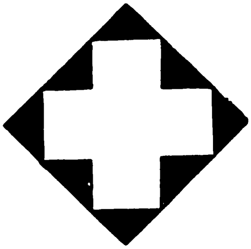
Move the upper right-hand side triangle out, until the sharp or acute corners touch; do the same with the lower left-hand triangle, and also with the upper left-hand and lower right-hand triangles, and the outline of this form will be a regular eight-sided figure—an octagon.

240.

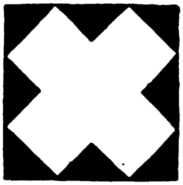


Turn each of the triangles over its base-line in regular order, that is, always remembering the opposites, and a star-form is produced which encloses the space of an octagon.

241.



242.



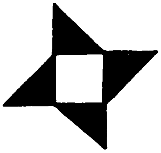
Turn every other triangle with its right angle towards the inside, and you have the intermediates of the two last forms.

All similar exercises train the child to handle its material methodically, and to use the eye correctly. The care which the child must exercise in handling the easily movable tablet, in order to keep it in its destined position, also tends to train the hand to a delicacy of touch, which is of great value.

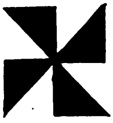
Other symmetrical forms can be made by joining

four triangles,

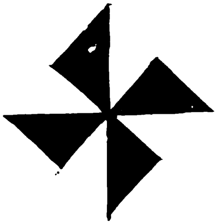
243.



244.

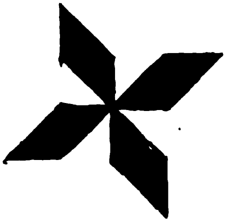


245.



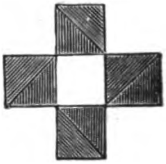
or four rhomboids,

246.



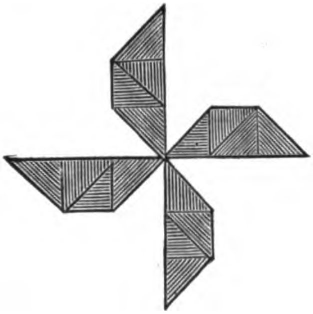
or four squares,

247.



or four trapezoids,

248.

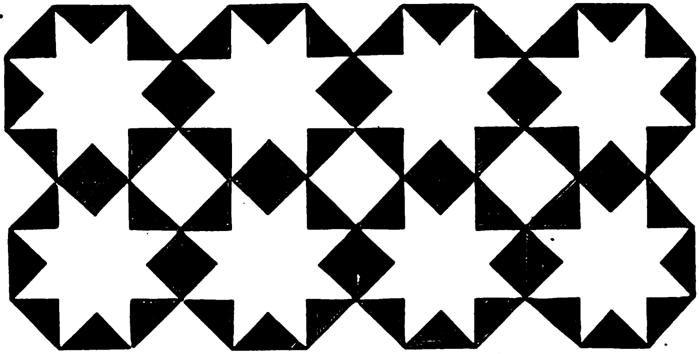


etc.

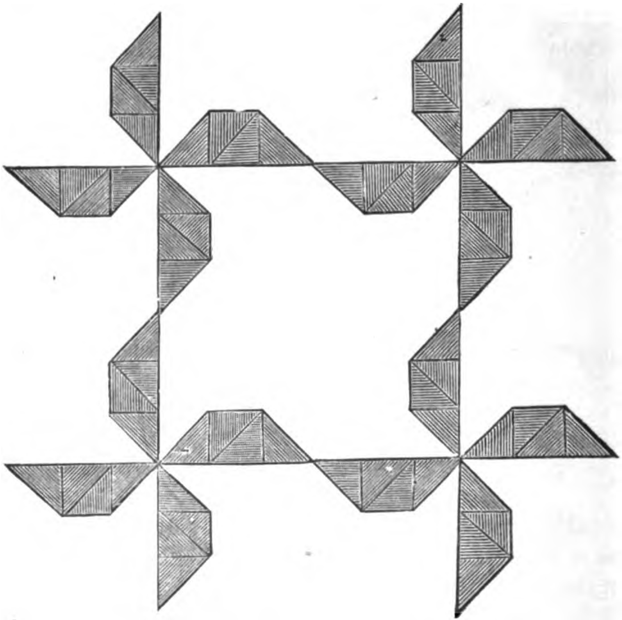
If the tablets are of two colors, the form may be first only of *one* color, then of the other, and then of both. Changes of position can be made with the opposite triangles in these forms, as in others, and it will be well—at the end of the lesson—to let the child, by regular changes, return to the original form from which it started.

If all the children unite in joining their forms together, their work is a common one, and there is no misapprehension in regard to its benefit; the children are working in harmony by the same common rule or law, the same aim unites them, doing in their play what society requires of them in after life—unity of thought and action.

249.



250.



Of what future occupation do the tablets form the basis?

Of Drawing, inasmuch as the first experiments in drawing are made with perpendicular, horizontal, and slanting lines, or with square and triangular forms, as they appear in the tablets.

The kindergartner should not keep back the tablets until the child has passed through the previous Gifts, but should introduce them between the different Gifts.

As each Gift is intended to be a step forward in the education of the child, a new kind of form is now introduced.

The *equilateral triangle* must be considered as being developed in the following manner:

Four square tablets are joined into one large square. If we imagine a circle drawn within this square, its radius will prove to be one inch long. This circle can hold six equilateral triangles, the sides of each being one inch long.—Large triangles, measuring two inches in the sides or edges, are at first used in the kindergarten.

The equilateral triangles, as first introduced to the child, are nine in number, packed in a little box. If a larger number of triangles were at once given, the child would not be likely to work with any distinct plan in view, and confusion and disorder would be the result.

The child's mind, instead of securing clear ideas of forms and realizing the pleasing results of the various combinations, would become wearied with a perplexing multiplicity of material which would convey to it no idea of the beautiful forms that could be derived therefrom.

The exercise of the mind in the use of the tablets is of life-long benefit. It awakens and develops a sense of the beautiful as seen in the regularity of forms, and which finds expression in various mechanical occupations.

In this triangle the *acute* angle only is found. This the child may discover by examining the tablet thoroughly and comparing it with the previous tablet; the child must be led to find the difference and the similarity existing in both. The former tablet and this one are both triangles. The right-angled triangle had only two sides or edges equal; this new one has *all* the sides or edges equal, and, therefore, this triangle has *all angles* or *corners equal*, whilst the former had one right angle and two equal acute ones. This should not be pointed out by long explanations, but should rather be brought home to the child by observation and comparison, that is, by correct perception. The children in the kindergarten should not gain their perceptions by words and abstract ideas, but by self-activity and contemplation, and the kindergartner should never forget that the kindergarten is an institution for educational occupation, and not for mere instruction.

In the equality of the sides and angles, or corners, the number *three* is the prevailing feature; Frœbel, therefore, called such representations three-sided, and to every person who recognizes the importance of a knowledge of geometry, it must be apparent that the facility with which the child learns to play with its triangles thoughtfully and understandingly, cannot fail to be of the greatest advantage to it in all future instruction. Almost any important form of space can be dissected and reduced into triangles; and that which formerly was considered as a special science—mathematics—to be mastered only by the life-long and laborious study of learned men, Frœbel gives to the children in his plays, leading them to understand its truths gradually, but intuitively.

Scientific explanation, or word-teaching, the children receive at a later period, and when the terms employed are no longer merely empty sounds, but the representatives of abstract ideas, easily comprehended.

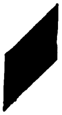
The child's eye has received the training for the necessary acuteness in the occupations with these laying-tablets, and is able to find the right point, the distinction of lines which border the planes, and the angles which appear by the connection of lines.

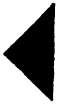
How should these triangles be introduced to the child?

Give the child *one* right-angled and *one* equilateral triangle, and let it find out the similarity and dissimilarity between the two.

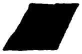
After the different positions have been observed which the equilateral triangle can take, *two* right-angled triangles and *two* equilateral triangles are given to the child. The two right-angled triangles, when joined at their base-lines, form a square, and when joined by two of their shorter lines, form either a rhomboid, or a right-angled triangle.

251.


252.


253.

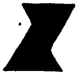
On joining two of the equilateral triangles, the rhombus appears; the child examines this and compares it with other forms. At first the child may call it "another kind of a square." It must be shown, however, that *the square* has equal sides and equal angles or corners; whereas this new form, though its sides are equal, has two sharp and two blunt corners, and two of its sides or edges are slanting. The child will also find, that on whatever side two equilateral triangles are connected, the *same* form is always gained, but in a different position: the opposite sides or edges being parallel; and the opposite corners or angles equal.


254.

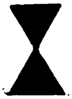
The two triangels may then be placed together, joining corner to corner, or corner to side.

The positions the triangles can take to each other, may also be shown by holding one triangle stationary, and moving the other around it.

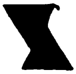
255.



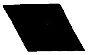
256.



257.



258.



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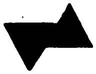

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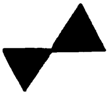

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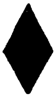

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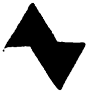
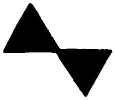
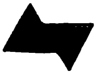


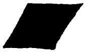
263.



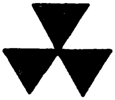
264.



265.

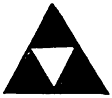


266.



Three triangles are then given to the child; at first they may all be joined in the middle by the corners.

267.



Then they should be joined so as to touch the corners, but so placed that *one* of their sides is towards the middle, producing thus an equilateral triangle, the inside of which forms a hollow equilateral triangle. As is done with all the tablets, so these are placed together:

1—side to side,
2—corner to corner,
3—corner to side, or
4—side to corner.

The tablets being of two colors, the sense of color is developed simultaneously with the sense of locality.

The laying-games with the tablets are also a good preparation for mat-plaiting; for almost all the patterns in mat-plaiting can likewise be represented by the different tablets.

The patterns produced by the tablets can also be utilized in practical life for patterns of flowers in wood or stone, for an inlaid table, a work-box, etc. Such exercises are, therefore, not only acknowledged as valuable perceptions to the child, on account of the mental training. which they afford, but they can also be utilized in the practical affairs of life.*)

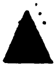
What kind of forms can be laid with these triangles?

Forms of *knowledge*, or geometrical forms; forms of *life*, or representations of objects which we see around us; and forms of *beauty*, or symmetry.

How are the forms of knowledge developed?

Begin with *one* triangle, and lead the child to find out its qualities.

268.

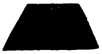


Then join *two* triangles touching on the sides, which give the rhombus.

269.

Three triangles touching on the sides produce the trapezoid, a four-sided form which has two of its sides parallel.

270.



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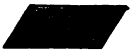
*) As an example of this, the following occurrence, of which I was an eye-witness, is here given. I was at the time studying with Frœbel's widow, who had been selected by him, from among his best pupils, to carry forward, under the prestige of his name, the work which he had inaugurated. One morning a stranger, to all appearances a working man, bringing with him some large object carefully wrapped in paper, called upon Mrs. Frœbel. He apologized for the liberty he was taking, but explained that his little boy now about five years old, had been for two years past a pupil in the kindergarten. He stated that he himself was a joiner by trade, but as he had not sufficient means to carry on this occupation with profit, he had, some time since, become greatly discouraged and disheartened. It was about this time that he noticed his little boy, who was accustomed to come into his workshop to play, when returning from the public kindergarten which Mrs. Frœbel was conducting, and watched him as he played with the chips which he found scattered around the shop. At first the father had not paid much attention to the child's play, but one day he noticed that he had made a combination of very beautiful forms consisting entirely of triangles, which he changed regularly and methodically from one form into another. Becoming interested he sat down by the child's side, learning from the little one. After a while he too began to arrange the forms in the same way and according to the law of opposites so unconsciously carried out by the child — a law which the maturer mind of the man grasped at once. The result of this occupation was that in time he had manufactured some very beautiful tables, the surfaces of which, formed according to the rules practiced in the kindergartens, were inlaid with parti-colored wooden triangles. These tables he had disposed of at a considerable profit, he had been enabled to relieve the wants of his family and better his own circumstances; his trade had materially increased and he was now becoming quite prosperous. He, therefore, called upon Mrs. Frœbel to express his gratitude and begged to offer her as a token of his thankfulness the little table which he had made and which showed, upon examination, the star-forms produced by following the law of opposites, which his little boy had been taught to find in the kindergarten. M. K.-B.

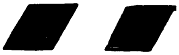
Four triangles touching on the sides show the rhomboid.

271.



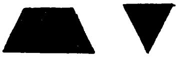
Divide the rhomboid, and you have two rhombuses.

272.



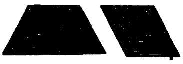
With four triangles you can also make one trapezoid and one triangle.

273.

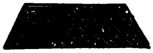


With *five* triangles you can make: one trapezoid and one rhombus; or one trapezoid; or two rhombuses and one equilateral triangle.

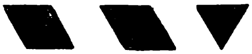
274.



275.

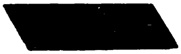


276.

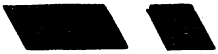


With *six* triangles make one rhomboid; or one rhomboid and one rhombus; or three rhombuses; or a hexagon, by turning one point of each triangle to the centre.

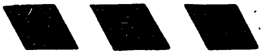
277.



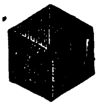
278.



279

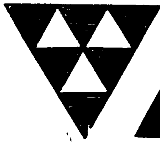


280.

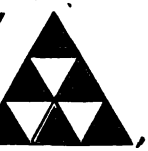


Turn alternately every other triangle outward, and you have a large equilateral triangle with the space for three more triangles inside.

281.



282.

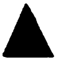


The sides or edges of these triangles being equal, there is no fixed base-line—it varies with the position which the tablet takes. The child does not call the forms at first by their geometrical names, but learns to know the figure, so that when later on the youth has to deal with any of them in his studies, he will recognize the form, and will only have to learn the name. For instance: On joining four triangles into a rhomboid the child recognizes a similarity between this figure and the oblong,—it bears the same relation to the oblong that the rhombus does to the square. The rhomboid may at first be introduced by the designation which the child has given it: an oblong four-sided form, the opposite edges of which are of the same length and parallel with—that is, at even distances from—two blunt or obtuse corners, and two sharp or acute corners. By joining *three* triangles on whatever sides or edges the child pleases, the trapezoid is always formed, though in different positions, and the child will, perhaps, call it a first a boat, then it will describe it as what it really is: an uneven four-sided form, having only two of its sides parallel.—

What can be said about the forms of life?

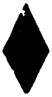
The forms of life made with these tablets do not prove so satisfactory as the forms of beauty.

283.



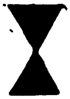
One triangle may represent a mountain.

285.



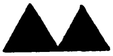
Two "equal-sided" triangles, as the children call them at first, by being joined on the sides, will make a kite, a cake of sugar (lozenge), or a cake of soap.

286.



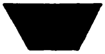
Two triangles being joined in the corners, will make an hour-glass.

287.



By placing two triangles side by side joining in the corner, one corner of each turned from you, the picture of two mountains is represented with the valley between.

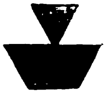
288.



289.

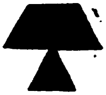
Three triangles touching on their sides or edges, form a boat (trapezoid) or, by reversing the latter, the roof of a house.

290.



Add a fourth triangle to the boat touching the upper line with a corner, and the figure may represent a boat with a sail.

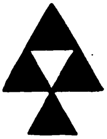
291.



Invert boat and sail, and there is a mushroom.

Invert the middle triangle of the trapezoid, and we have the pigeon-house.

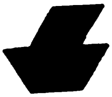
292.



Add another triangle to the boat with sail, and the sail will be more complete, and the children are at once ready to sing:

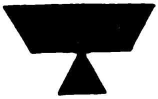
"Our vessel forward calmly sails", etc.

293.



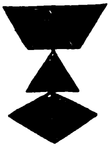
Of *six* triangles a flower-dish can be made,

294.



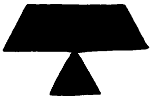
or a wine-glass,

295.



or a table.

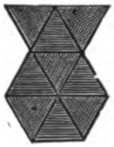
296.



Of *nine* triangles make a vase as follows:

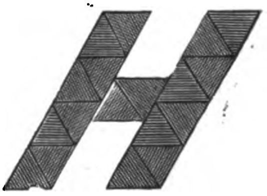
Form a hexagon of six triangles so that one of its edges faces you; then make a trapezoid of the three remaining triangles and place it above the hexagon, so as to touch its upper edge with its short parallel line.—

297.



The letter *H* can be made by forming two rhomboids, each of eight triangles; place them parallel to each other slanting from the left lower side upwards to the right upper side, and join them in the middle by a rhombus.

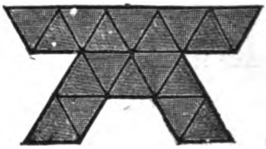
298.



Or a flower-stand can be made of the same number of triangles (18).

This might be dictated thus:

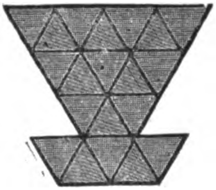
299.



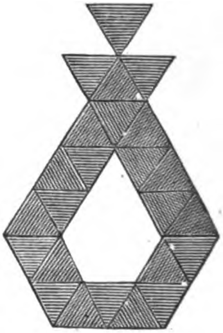
Form a trapezoid of nine triangles, and place it so that the short parallel line is towards you: then make another trapezoid of five triangles and place it with its short parallel side so as to touch the short parallel side of the upper trapezoid; then make two opposite equal rhombuses and place them below on each side touching the long parallel side of the lower trapezoid so that each rhombus slants towards the outside — and the flower-table is finished.

This table can be changed into another kind of table according to the child's fancy. One child may also tell the other children what changes to make and how to make them.

300.



301.

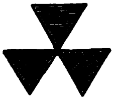


Of *twenty* triangles make a flower-pot.

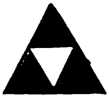
Of *twenty-four* triangles make a decanter, etc.

How are the forms of beauty developed?

302.

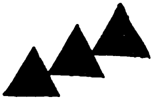


303.

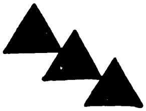


Begin with *three* triangles, joining first the corners in the middle, then turning the sides to the middle, then corners touching sides in as many different positions as can be found. The form in which one corner touches the side of another triangle, results in a turning figure, the inside of which is an enclosed equal-sided triangular space.

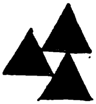
304.



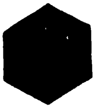
305.



306.

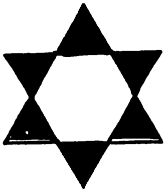


307.

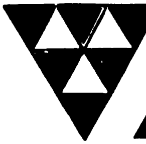


With *six* triangles the hexagon is made. Turn each triangle over its outer edge, and a symmetrical six-rayed star is produced, its inside forming a hexagon.

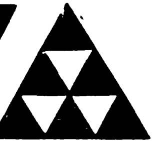
308.



309.

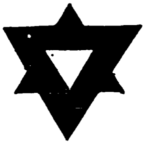


309a.



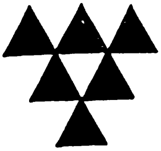
Turn alternately one triangle in, and there is a large equilateral triangle.

310.



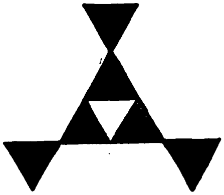
Again, starting from the six-rayed star, move the upper triangle and the lower right and left ones towards the middle until they touch in the corners, forming an equilateral triangle; on moving up the three outer triangles with their sides close to the sides of the other larger triangle — an irregular six-rayed star appears, or—as it were—two triangles cutting each other.

311.

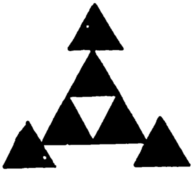


Turn the outside triangles over, so that one corner of each touches the middle of a side of this larger triangle.

312.

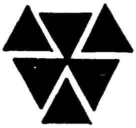


313.



Let the outside triangles touch the corners of the larger triangle with their corners, and then with their sides.

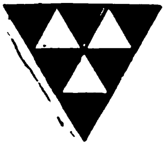
314.



Form the hexagon again; then move the lower front triangle and the upper right and upper left triangles a little out;

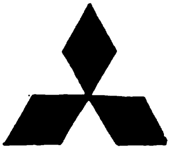
move them quite out, and turn them with their edges towards the open spaces, which then are triangular.

315.



Place these three triangles with their edges touching the outer edges of the central form thus producing three rhombuses touching with the sharp corners in the centre, etc.

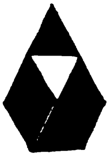
316.



Or:

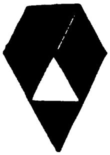
Make a hexagon again, place it before you, so that the lower edge is in front of you. Turn the upper triangle over so that its point is turned outside and its edge towards the centre; turn it back to its first place.

317.



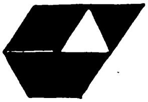
Do the same with the lower triangle;

318.

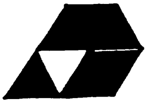


also with the upper right-side, and lower left-side triangles;

319.

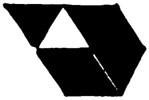


320.

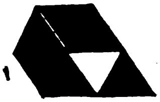


and with the upper left-side, and lower right-side triangles.

321.

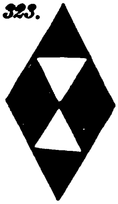


322.



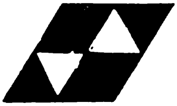
Each of these latter six forms may be compared to a kite.

323.

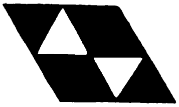


Then turn each two opposite triangles over and back.

324.

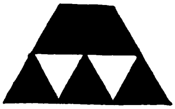


325.



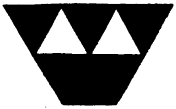
Next turn the left and right lower triangles over and back;

326.



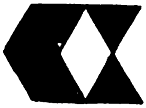
also the upper right and left ones.

327.

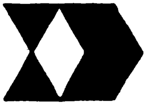


Then turn the two right-side triangles—and after that also the two left-side ones over their outer edge, moving and replacing thus methodically, by twos, all the triangles forming the hexagon.

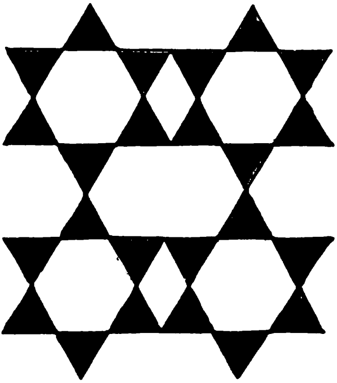
328.



329.



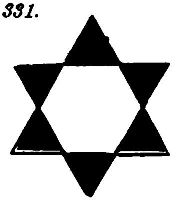
330.



All the forms which the children have made, can be joined into one large form, provided they are of the same kind.

After this turn over methodically three triangles of the hexagon;

331.



then four triangles; after that five triangles, and then all six triangles; the last change results again in the six-rayed star.

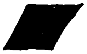
The same course should be pursued in turning the triangles towards the inside again, by beginning with *one* triangle all around, then follow up with *two*, *three*, *four*, *five*, and at last with *six* triangles; when the points of all six are turned towards the inside, the hexagon is there again.

It will, of course, be understood, that such names as trapezoid, hexagon, etc., are only used carefully in teaching older and more advanced children.

The pentagon, for instance, is called at first a five-sided form; the hexagon, a six-sided form; etc.—The angles and sides of these forms are also studied and compared, as well as the directions of the lines; and the child will learn that two lines which have the same direction, and are in all their opposite points of equal distance, are called *parallel.*

That an angle which is smaller than a right-angle, is called "sharp" or "acute", the child has already learned. But it will now learn, by placing two triangles together, that two corners are *larger* than the right-angled corner, which was heretofore the special object for consideration; the acute angle and also the obtuse angle, although observed and talked about incidentally, still have not played an important part in the construction of figures. But in this equilateral triangular tablet all the angles are acute or sharp. Now by placing two equilateral triangles together, the child finds out in this instance, that the blunt or obtuse corner is twice the size of the acute corner.

332.



This and similar treatment of the different forms awakens and develops the taste for observation and stimulates the reasoning faculties.

These tablets may also be used for exercises in numbers.

Should children be allowed to play by themselves with these tablets?

Certainly; for the result of this kind of free activity will be not only the pleasure and delight in the production of the beautiful forms, but the improvement and cultivation of the eye for the appreciation of pleasing forms.

We come now to consider the *right-angled scalene* triangle or the *right-angled unequal-sided* triangle.

This triangle is—so to speak—developed from the Fourth and Sixth Gifts, that is from the oblong; imagine the largest surface of the brick divided diagonally; the outer edges of the triangle thus gained will prove to be *one* and *two* inches long, respectively.

333.

When introducing these tablets, it will be advisable to make comparisons with the former tablets, by which the following facts will be made apparent:

1—that *one* of these new tablets *is just as large as a square tablet.* We can demonstrate this by making an oblong of two triangles, and another oblong of the same size of two squares. By dividing each of the two oblongs separately into two equal halves, the child finds that half the oblong is just one square, again that half the oblong is a scalene triangle, and that, therefore, one of these triangles is equal to a square;

2—that it is just as wide at its shortest line, but twice as long, as a square tablet;

3—that it has one right and two acute angles;

4—that it has three unequal sides;

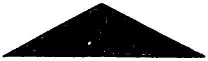
5—that the two acute angles are two unequal acute angles.

All these observations are an important step forward in geometrical knowledge, the force of which prepares the child's mind not only for the conception of many deductions, but, which is of far more importance—for the faculty of making those deductions itself.

The combinations of *two* tablets are very numerous.

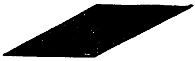
1—The short sides or edges may touch forming an obtuse-angled triangle.

334.



2—The short sides may touch forming a rhomboid.

335.



3—The longest sides or edges may touch forming an oblong.

336

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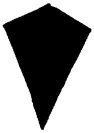
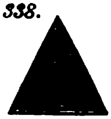
337.



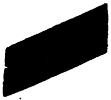
4—The longest sides or edges may touch forming a trapezium.

338.



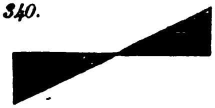
5—The intermediate-sized sides or edges may touch forming a large isosceles* triangle.

339.

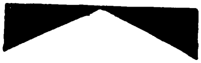


6—The intermediate-sized sides or edges may touch forming a rhomboid.

340.

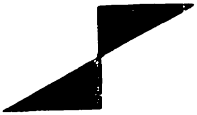


341.

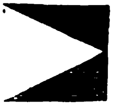


7—The sharpest corners or smallest angles may touch in different ways.

342.

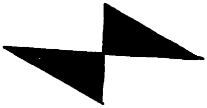


343.



8—The largest of the sharp or acute corners may touch in different ways.

344.



9—The right angles may touch.

10—The edges may touch each other *partly* thus:
  a. the two shortest;
  b. the two longest;
  c. the two intermediate;
  d. the shortest and longest;
  e. the shortest and intermediate;
  f. the longest and intermediate.

All these exercises call forth many observations and comparisons. When joining two triangles into a rhomboid, a trapezium, etc., the kindergartner should point out the characteristics of each, while exercising her discretion as to the use of technical terms. By the different combinations of the two triangles the child becomes thoroughly conversant with their peculiar features.

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* — not right-angled —

Another lesson which the child will practically learn, is, that while *all right* angles are alike, all sharp or acute corners are *not* alike. In order that the child may thoroughly comprehend this, take first two right-angled isosceles triangles, then two equilateral triangles, and lastly two right-angled scalene triangles.

The right angles of the first the child will find to be equal—equal also to any other right angle or right corner with which they may be compared. The two sharp corners of the right-angled isosceles triangles joined made *one right* corner or angle.

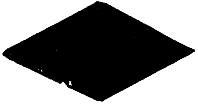
Let the child now take the two equilateral triangles, and join two of their acute corners—this will *not* make a right angle as did the two acute corners of the isosceles triangles—but it will make a *larger* one —a blunt or obtuse angle.

Let the child now join two right-angled scalene triangles in the sharpest corners - they give *no* right angle—it is one smaller than the right angle, therefore an acute angle.

Let now the largest acute corners be joined—they neither give a right angle—but a blunt corner, an obtuse angle.

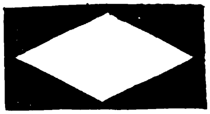
With their three unequal edges and corners these triangles may at first appear to be rather unmanageable material, both for hands and brains; but the child's interest is soon easily awakened in making the geometrical figures which it has made with the other triangles, and in finding names for various forms which it easily produces.

345.



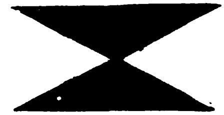
Then. four tablets may be joined with the right angles turned to the middle, and touching all others.

346.



The opposite form is made by turning the right angles out.

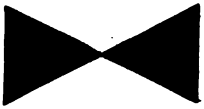
347



No. 345 can be divided up and down, and reversed.

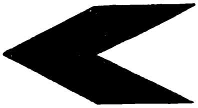
No. 345 can be divided right and left, and reversed.

348.



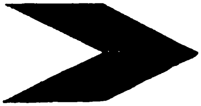
By joining the left half of No. 345 and the left half of No. 346, we gain another intermediate form.

349.



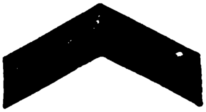
Other opposite intermediate forms we gain by joining the right half of No. 345 and the right half of No. 346;

350.



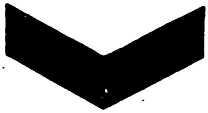
or the upper half of No. 345 on the upper half of No. 346;

351.



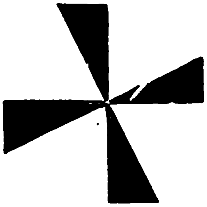
and the lower half of No. 345 on the lower half of No. 346.

352.



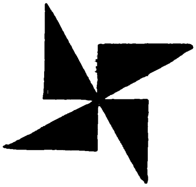
The four triangles can also touch in their sharpest corners·

353.



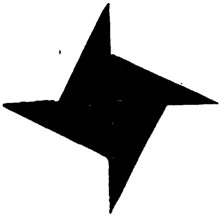
or in the largest of the sharp corners:

354.



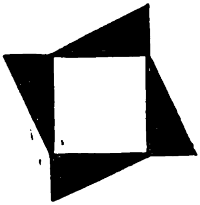
355.

or by turning the right angles to the middle, and touching the shortest with the intermediate side;



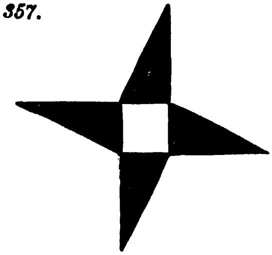
356.

or the four tablets can be so joined that always a right angle touches the sharpest corner, enclosing the space of a square (a hollow square).



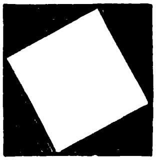
357.

By joining the four tablets so that a right angle always touches the largest of the sharp angles, a square inch is enclosed.



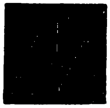
358.

By letting the sharpest corners touch with the largest of the sharp angles, so that the longest edge is turned to the middle, the space of a square is again enclosed.

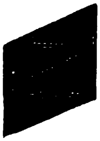


359.

Make two oblongs of four triangles, and join them at their longest edges, and you have a square.



360.

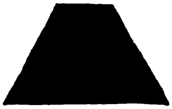


Join two rhomboids so that they form other rhomboids.

361.

Join four triangles into one trapezoid.

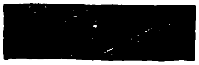
362.



Join four triangles into an oblong four times as long as it is wide—up and down—from right to left.

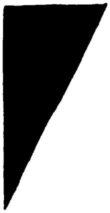
363.

364.

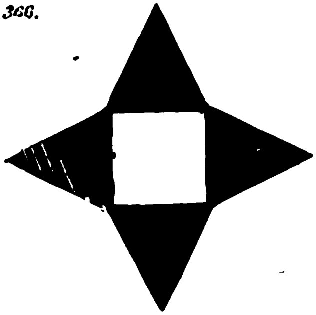


Join four triangles into a large right-angled scalene triangle, etc.

365.

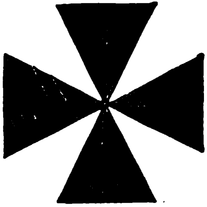


366.



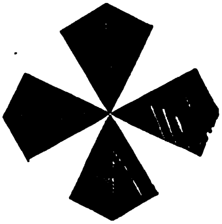
Make of *eight* triangles four large isosceles triangles, and enclose with them the space of a square inch.

367.



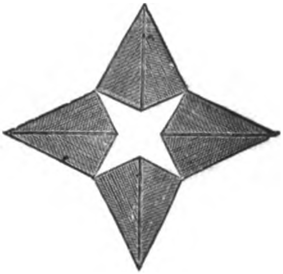
Reverse this form so that the corners touch in the centre, and the edges are turned outward.

368.



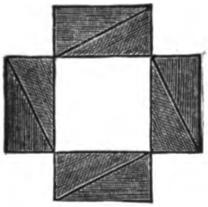
Of eight triangles make four trapeziums, and join them in the centre in the sharpest corners.

369.



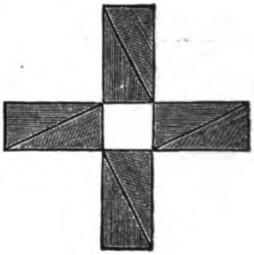
Reverse the parts of the last form, so that the obtuse corners, which were turned out, are now turned towards the inside.

370.

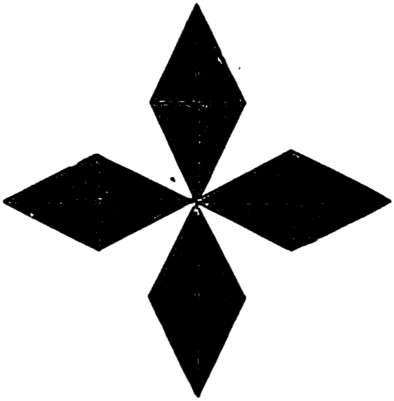


Of eight triangles make four oblongs, and enclose with them a square—by first turning the longest edges, and then the shortest, to the inside.

371.

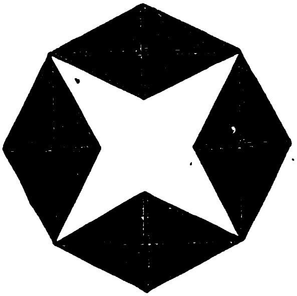


372.



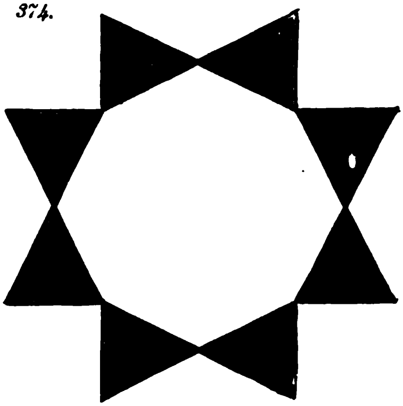
Of *sixteen* triangles make four rhombuses, and join these in the centre with the acute corners.

373.



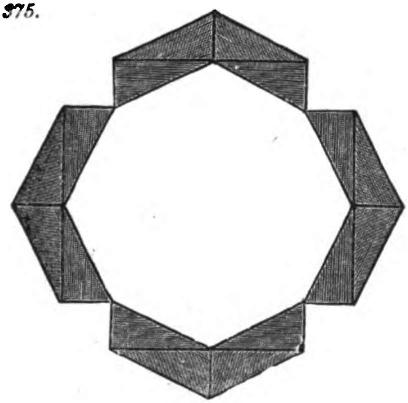
Reverse the rhombuses so that they touch in the acute corners and turn their largest or obtuse corners towards the centre.

374.



Four times the No. 348 joined, enclose an octagon.

375.



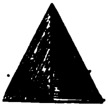
No. 351 and No. 352 and their opposites joined together, enclose also an octagon, etc.

Forms of *life* can be made in great multiplicity:

376.

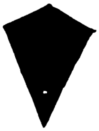
A box, by joining two triangles into an oblong from right to left.

377.



A tent, by making of the two triangles an isosceles* triangle.

378.

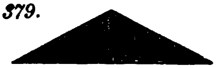


A kite, by making of two triangles a trapezium.

* — not right-angled —

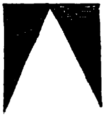
A roof, by making of two triangles an obtuse-angled triangle.

379.



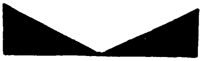
Curtains, by joining two triangles in the largest of their sharp corners above.

380.



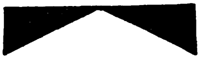
A bedstead, by joining two triangles in their sharpest corners from right to left.

381.



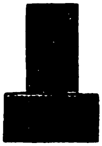
A table, by reversing the latter form.

382.



A monument, by making of four triangles two oblongs; place one from right to left, and the other up and down above it.

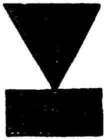
383.



Also with four triangles make the following forms:

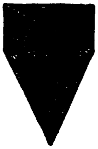
A coffee-mill, by placing an isosceles* triangle, formed of two triangles, with its corner touching the upper edge of an oblong from right to left.

384.



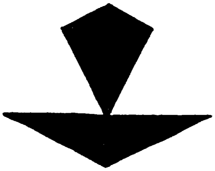
A funnel, by placing the isosceles triangle of the preceding form below the oblong, edge touching edge.

385.



A boat with sail, by making of two triangles an obtuse-angled triangle, with its base-line turned from you, and placing above it a trapezium with its sharp angle touching the middle of the base-line.

386.



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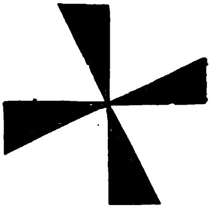
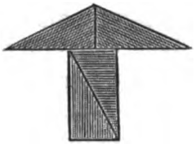
* — not right-angled —

387.



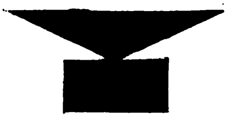
A windmill, by joining the triangles in the sharpest corners in the centre so that the longest edge of each triangle is turned towards the intermediate edge of the next one.

388.



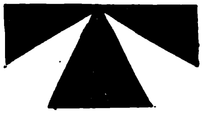
A mushroom, by placing an obtuse-angled triangle, made of two triangles, with its base-line touching the short upper edge of an oblong up and down.

389.



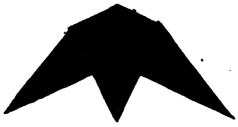
A fruit-dish, by placing an obtuse-angled triangle with its obtuse angle touching on the ong edge of an oblong from right to left.

390.



A table, by joining two triangles in their sharpest corners, and placing below this an isosceles triangle, one corner turned up, touching the two joined acute corners.

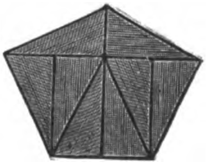
391.



A jacket, by making a trapezium, and joining on the upper part of each of the long sides a triangle with its shortest side.

Of *eight* triangles make the following forms:

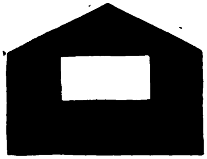
392.



A dish, by making with six triangles a trapezoid turning its longest edge away from you, and placing an obtuse-angled triangle above it with its base-line touching the upper edge of the trapezoid.

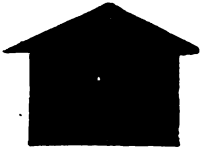
Make of two triangles an oblong from right to left; make two more oblongs of the same size, and place them at the right and left sides of the oblong, their lower edges being level.. Above this place an obtuse-angled triangle made of two triangles, with its base-line turned towards you.

393.



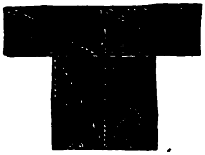
A house, by making of six triangles three oblongs up and down, joining these in their long edges, into an oblong from right to left, and placing above this an obtuse-angled triangle made of the remaining two triangles, with its base-line touching the oblong.

394.



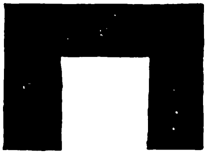
A rustic table, by joining four triangles into one square and placing above this an oblong from right to left made of four triangles.

395.



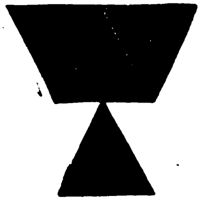
A kitchen-table, by separating the two oblongs forming the leg of the former table.

396.

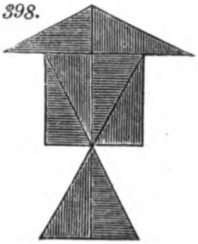


A wine-glass, by joining six tablets into a trapezoid, the longest edge turned away from you, and making of the two remaining triangles an isosceles triangle, which is placed below the trapezoid, one corner turned away from you.

397.

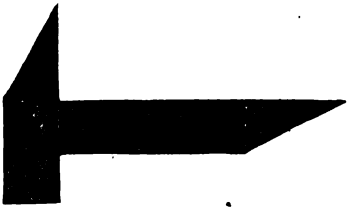


398.



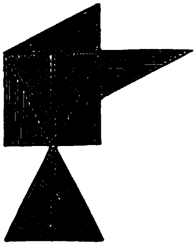
A pigeon-house, by making of four tablets a square, of two tablets an isosceles triangle touching the square in the middle of its lower edge with a corner; then forming of two triangles an obtuse-angled triangle, and placing this above the square, the base-line touching the square.

399.



Make a hammer,

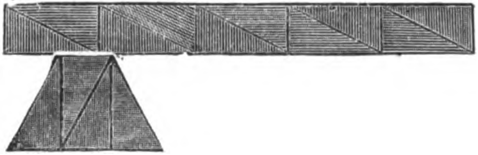
400.



or an old-fashioned kitchen-lamp. etc.

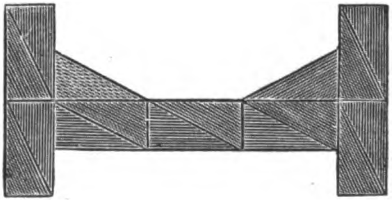
Of *fourteen* triangles make

401.



a hatchet,

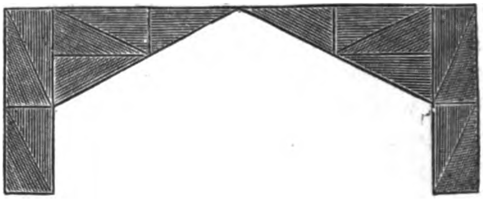
402.



of *sixteen*

a bedstead,

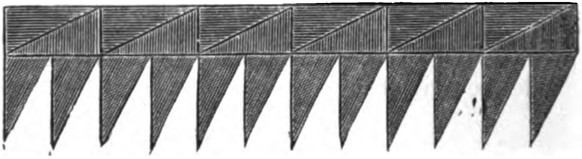
403.



a bridge, etc.

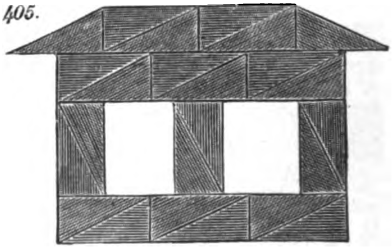
Of *twenty-four* tablets make the following forms:

404.



the blade of a saw,

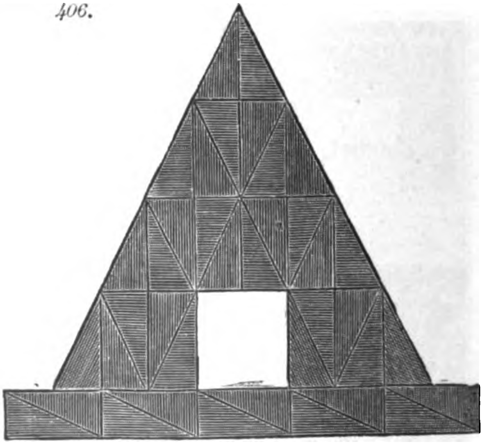
405.



a house with two open windows, etc.

Of *thirty-eight* tablets make:

406.

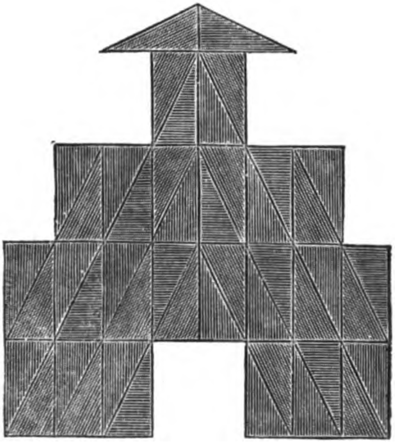


a pyramid.

Of *forty-six* tablets make:

407.

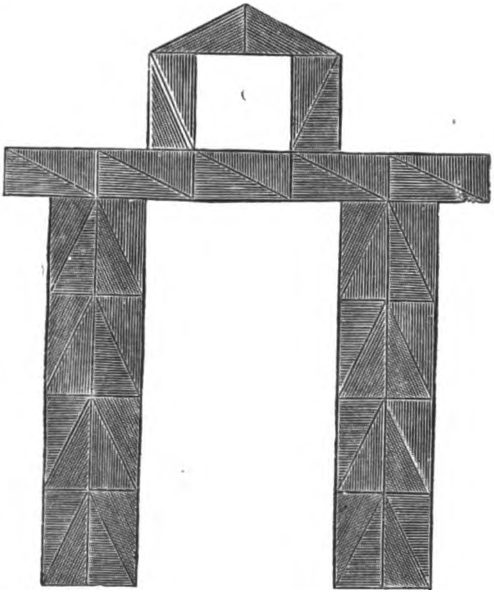
the city-hall.



Of *forty-eight* tablets make:

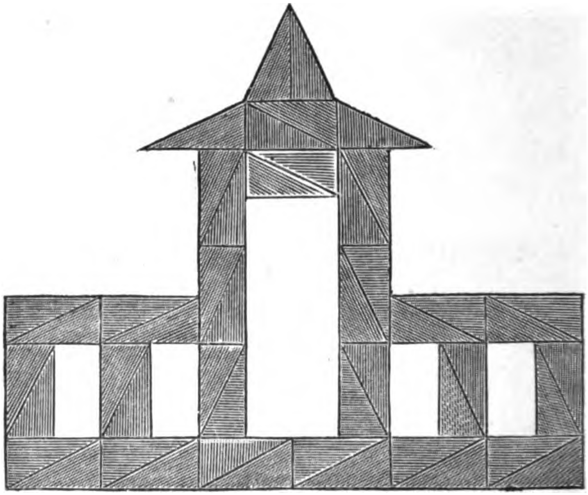
408.

a gate,



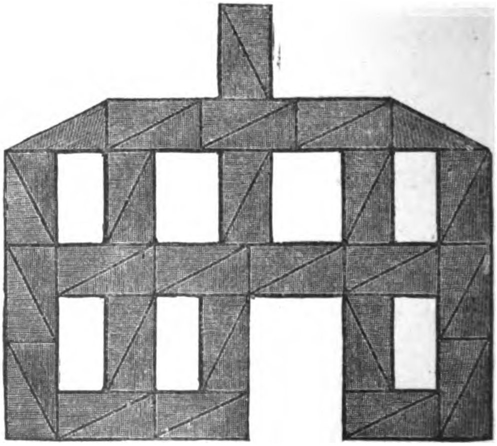
409.

a villa,



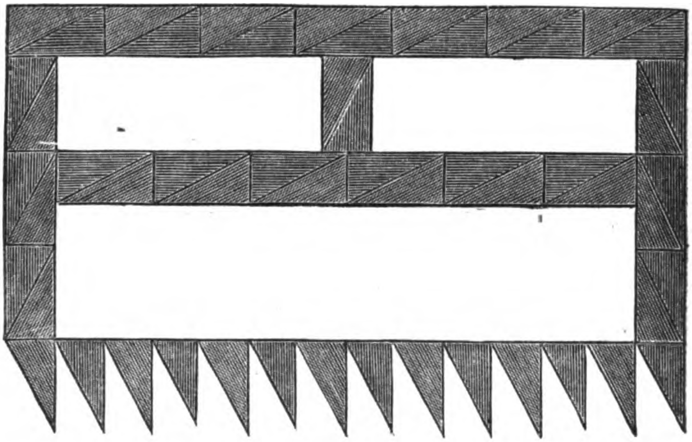
410.

a house.



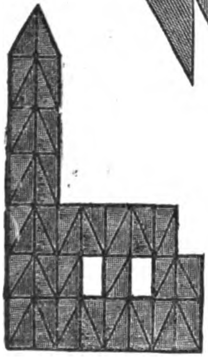
Of *fifty-four* triangles make:

411.



a saw.

412. *

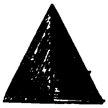


Of *fifty-six* triangles make:

a church.

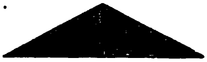
After the single tablet has been thoroughly studied as introduced at the beginning, and when its peculiarities have been recognized—the forms of *knowledge*, or geometrical forms, gained by joining two triangles, are found; for instance:

413.



Form a triangle so that the edges second in length touch; what kind of triangle is this?

414.



Form a triangle so that the shortest edges touch; what kind of triangle is this?

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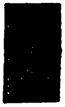
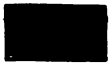
* Illustration reduced in size.

415.



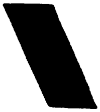
Form an oblong up and down.

416.



Form an oblong from right to left.

417.

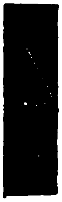


Make a four-sided form so that the edges second in length are joined; the child observes that this four-sided form is oblong and has no right angles, but two blunt (obtuse) and two sharp (acute) ones, and that the opposite edges are parallel, and it will recognize the rhomboid.

418.

Of four tablets form a square.

419.

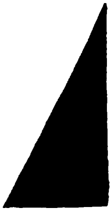


Of four tablets form an oblong up and down.

420.

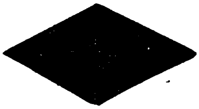
Of four tablets form an oblong from right to left.

421.



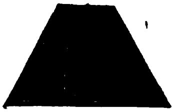
Of four tablets form a triangle.

422.



Of four triangles form a rhombus.

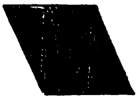
423.



Of four triangles form a trapezoid.

424.

424a.



Of four triangles form two different rhomboids.

The child must be led to notice that the different forms have the same size, because they are constructed of the same number of equal parts, and also to observe the same form in various sizes. By comparison the child learns that, though the size and position may be altered, the form or shape and the angles remain the same.

The kindergartner should point out the characteristics of the forms, while exercising her discretion as to the use of technical terms, and the child, whilst constructing the different forms in the different sizes, will become thoroughly conversant with their peculiar features.

It is in the forms of *beauty* that the right-angled scalene tablets are most valuable, and there is scarcely any limit to the beautiful forms which we can make with them.

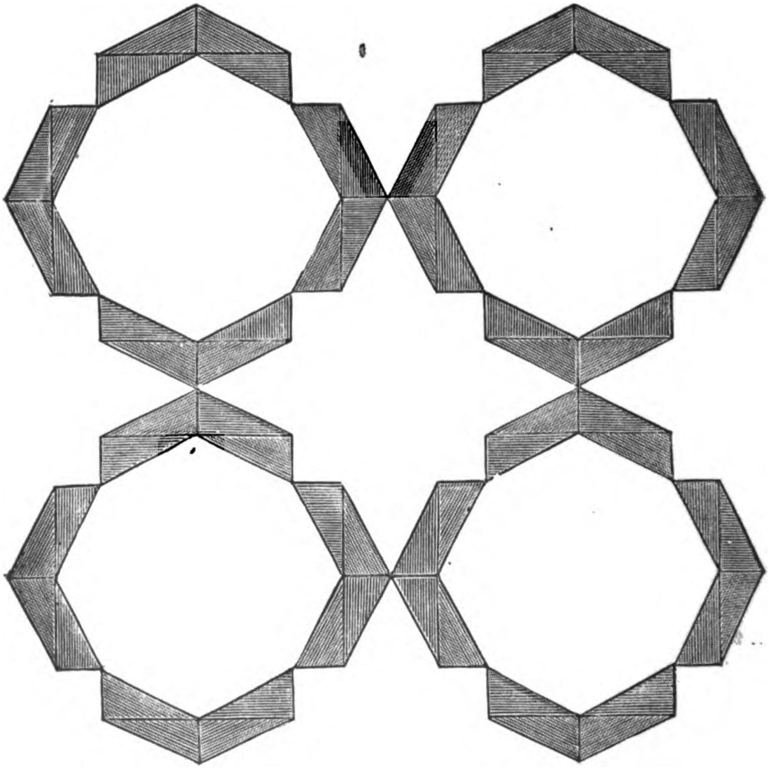
By following the law of opposites, mosaic forms of real beauty grow under-hand, and repeating these forms, as we can readily do on account of the large number of tablets, we may show many and diversified surfaces of inlaid patterns.

The handling of the tablets is a valuable training for the fingers, the thin, light bits of wood are displaced by the least false touch, and exactness and order are brought to a high state of perfection —if the tablets are well managed. These tablets in their forms of beauty, also, teach the child in a silent yet forcible manner, what true beauty is, and it learns to appreciate and look for the beautiful things that surround it on all sides; thus, with its cultured love for beautiful objects, the child is unable to find any pleasure in whatever is unsymmetrical and ungainly. These triangles, also, offer a greater variety of forms and combinations, and afford more opportunity to exercise the inventive faculty in their arrangement, both on account of the greater number of tablets contained in the box, and of the greater variety of their sides and corners, no two of the sides and corners being alike.

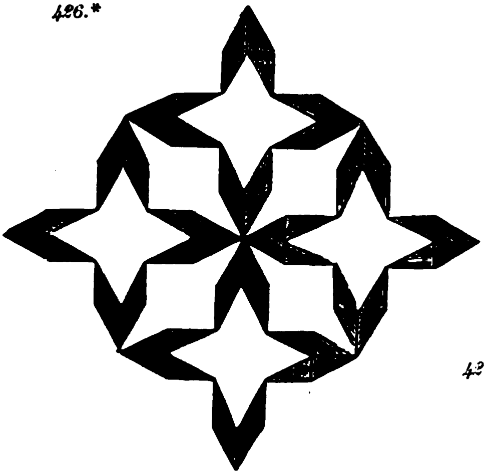
The forms of *beauty* are constructed of the combinations of geometrical forms, as shown in the preliminary exercises (forms Nos. 372, 373, 374, and 375); for instance:

Figures 372, 373, 374, and 375 divided up and down,—right and left, as in the "Series of Drawing," and rejoined in their different parts, according to their opposites, give the following forms:

425.

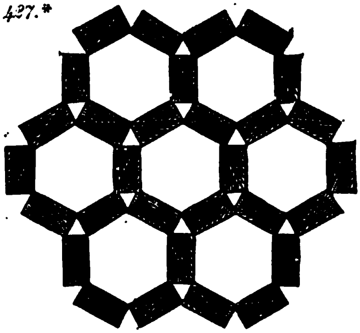


426.*



Three oblongs joined in the corners turning the short edges towards each other, enclose the space of an equilateral triangle; this form repeated will produce the hexagonal forms, enclosed—as it were, by six oblongs, etc.

427.*



Such combinations represent tessellated forms.

Should the children be allowed to work together?

Yes, although the material is so ample, that each child has enough for itself. But—this *working together* may begin even when the child is allowed only *two*, or *four*, or *eight* triangles; for it checks any predisposition to selfishness, as the same common aim unites the children. The kindergarten is the children's miniature world—they are the workers in it—and in these little lessons much may be inculcated which will lay the foundation of a practical, helpful life for the future man or woman.

Songs, stories, and instructive remarks or conversations should be connected with the forms made by the children, thus giving them a practical understanding of objects which they daily see, and preparing them to understand many others with which they will meet later in life.

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* Illustration reduced in size.

The fourth kind of the series of triangles, or the fifth and last kind of the series of tablets are the *obtuse-angled triangles.*

The tablets fill a beautiful and important place in the gradual development of the child; they occupy the middle ground between the concrete and the abstract, while their use gives to the hands carefulness, neatness, and dexterity, and to the eye accuracy and precision. As in the lessons given with the other kindergarten Gifts, so also in the lessons given with the tablets, the child should become familiar with their appearance, not by being crammed with geometrical terms hard enough to remember, and still more difficult to understand, but through the sense of sight and a practiced eye, and also by the sense of touch and a careful hand.

The many repetitions of the forms with different materials cannot fail to make a lasting impression on the child's mind, and thus the forms will constantly recur to it.

Each of these obtuse-angled triangles is two inches long at its base-line, and three-fifths of an inch wide at the obtuse angle.

These tablets are particularly used for constructing forms of beauty or symmetry. It is desirable to have a triangular net-work on the table for the child's use for the purpose of placing the tablets, instead of a square net-work, inasmuch as the base-line of one of the obtuse-angled tablets has just twice the length at the edge of an equilateral triangle, and three obtuse-angled triangles joined together form one equilateral triangle, measuring two inches in the edges.

The obtuse-angled triangle has one obtuse and two acute corners; the two acute or sharp corners together are of the same size as one corner of the equilateral triangle, and the obtuse angle of this new triangle is double the size of one angle of the equilateral triangle, and four times the size of one acute angle of the new triangle.

All this the child will learn by measuring and comparing.

In what manner is the obtuse-angled triangle thought to be developed ?

By dividing a large equilateral triangle the sides of which measure two inches, from each of its corners to the centre, we gain three obtuse-angled triangles of the same size as those we use in the fifth series of tablets.

May the different series of tablets be used together?

All the tablets being made upon a uniform scale of measurement (one inch), the simultaneous use of any or all of the five different kinds of tablets is possible.

The following combinations are to be recommended:

a) squares and right-angled isosceles triangles;
b) squares and equilateral triangles;
c) squares and right-angled scalene triangles;
d) squares and obtuse-angled triangles;
e) equilateral triangles and right-angled scalene triangles.
f) lastly, all kinds of triangles may be joined together, that is, a limited number of each kind.

The different colors of the various tablets, also, give a particular interest and significance to the game; for each kind of tablets should be of two colors—complementary colors, and also black and white, as being the two poles in the circle of colors.

Thus, the squares might be red and white,

428.

the isosceles triangles red and green,

429.

the equilateral triangles yellow and purple,

430.

the scalene triangles orange and blue,

431.

the obtuse-angled triangles black and indigo.

432.

In this manner each child may be accustomed, from the very beginning, to tasteful combinations of colors.

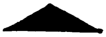
Tablets of only one color, or of undecided or mixed colors, are not so well adapted for the purpose, and tablets unevenly made should not be used.

How should the exercises begin?

In the forms of *knowledge* the exercises should begin with *one* tablet thus:

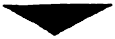
Place the tablet with its base-line towards you;

433.



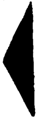
place the tablet with its base-line away from you;

434.



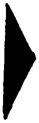
place the tablet with its base-line to the right;

435.

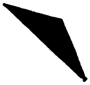


place the tablet with its base-line to the left;

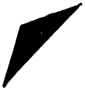
436.



437.



438.



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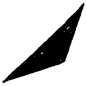
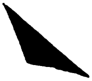


440.



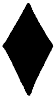
place the tablet with its base-line slanting in different directions.

The triangle is carefully studied, for instance:

The base-line is measured, and found to be two inches long, the width three-fifths of an inch.

Then *two* triangles are joined in their base-line, forming a rhombus, the acute angles of which are above and below, while its obtuse angles are on the right and left sides.

441.

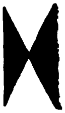


Then the rhombus is so placed, that the acute angles are on the right and left sides, and the obtuse angles above and below.

442.

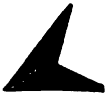
The two triangles are joined in their obtuse corners.

443.



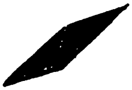
The two triangles are joined in two of their short sides, and present a four-sided form looking like an arrow-head.

444.

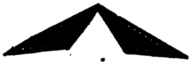


The two triangles are joined in two of their short sides, so as to form a rhomboid.

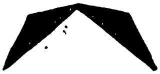
445.



446.

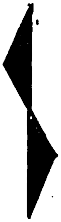


447.



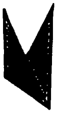
Join two triangles touching in two of their acute angles or corners, in various ways.

448.

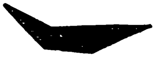


Join the two triangles in two of their sides *partly*,

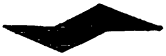
449.



450.



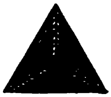
451.



etc.

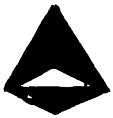
Join *three* triangles in their short sides and obtuse corners, forming an equilateral triangle.

452.



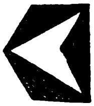
Turn one triangle of the latter form so that its obtuse angle is turned outward; this gives a four-sided form—a trapezium.

453.



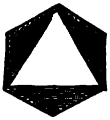
Invert another triangle, making a five-sided form.

454.



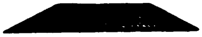
Invert the third triangle also, and you have a six-sided form—a regular hexagon, enclosing the space of a large equilateral triangle.

455.



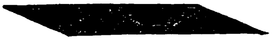
Of *three* triangles form a trapezoid.

456.



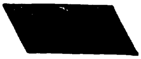
Of *four* triangles form a rhomboid.

457.



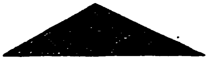
Join four triangles into two rhombuses, and the latter into one rhomboid.

458.



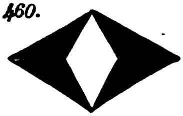
Join four triangles into one large obtuse-angled triangle.

459.



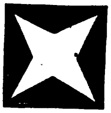
Of four triangles make a rhombus, leaving the space of a rhombus in the middle;

460.

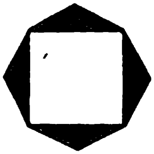


or make a square; then by turning each triangle over its base-line, make an eight-sided figure (octagon) enclosing the space of a square.

461.

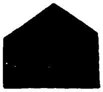


462.

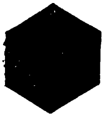


Of *five* triangles make a five-sided form.

463.

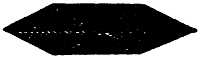


464.

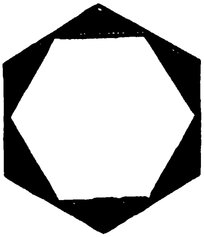


Of *six* triangles make a six-sided form.

465.

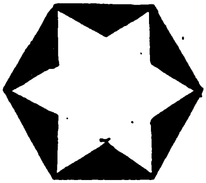


466.



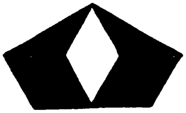
Of six triangles make another six-sided form, which encloses also a hexagon, while on inverting the six triangles, a six-rayed star in a hexagon is represented.

467.



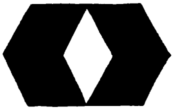
Of six triangles make a five-sided form, enclosing the space of a rhombus.

468.



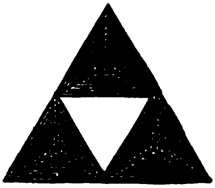
Of *eight* triangles make a six-sided form, enclosing the space of a rhombus.

469.



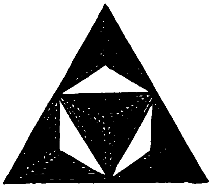
Of *nine* triangles make one large equilateral triangle, joining always three into one equilateral triangle, and leaving the space of an equilateral triangle in the middle.

470.



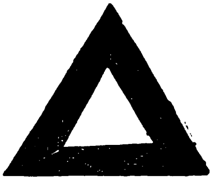
Make another equilateral triangle of the same size as the preceding form, by turning the three central triangles over their base-lines with the obtuse corners to the centre, forming in the middle an equilateral triangle, and leaving between this and each arrow-head, formed of two of the outer triangles, the space of an obtuse-angled triangle.

471.



Change this triangle into another equilateral triangle of the same size, by turning the obtuse corners of the three inner triangles outward, and placing them now so that their obtuse corners fill the obtuse angles between the sides of the outer triangles; thus the whole triangle is made—as it were—of three trapezoids, turning the small parallel side to the centre, and enclosing the space of an equilateral triangle.

472.

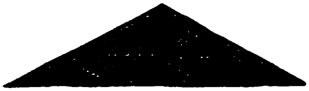


473.

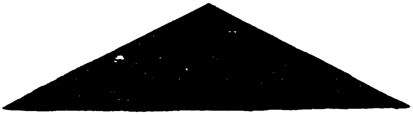
It is a good plan to let the child find out, for instance, how many different-sized rhombuses, rhomboids, triangles, etc., can be made.

474.

475.



476.



477.

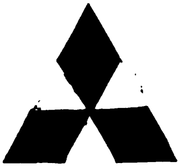
After the child has become familiar with the forms, its calculating powers should be cultivated by being encouraged to make as many forms of the same kind, but of different sizes, as it likes, and use as many triangles from its box as it wants; it will then be led to compute the number needed for each new form. Then it will learn that the addition of even one tablet destroys the form, so that a new proportion altogether must be used. This will show the child the difference between arithmetical and geometrical ratio.

The forms of *knowledge* occurring constantly in the forms of *life* and *beauty*, it is really necessary that the child should acquire facility in the construction of them.

The forms of *beauty* are made of the forms of *knowledge.*

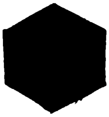
For instance, begin by making of six triangles three rhombuses, and joining these in their acute angles.

478.



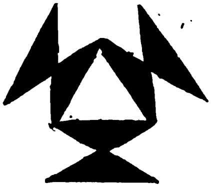
Turn the rhombuses with their obtuse angles towards the centre, which form gives the hexagon.

479.



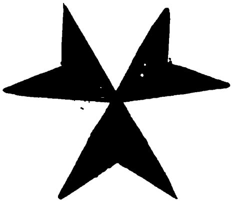
Take the three central triangles out of the latter form, and join them to the outside triangles, the obtuse angles touching.

480.



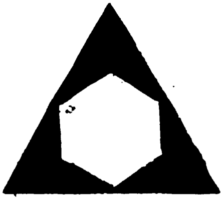
Join three Nos. 444, that is, three so-called arrow-heads, in their largest acute corners.

481.

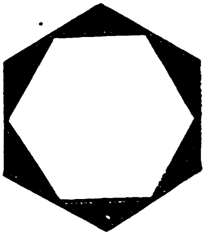


Reverse this last form, so as to enclose the space of a hexagon, and form in the outline an equilateral triangle.

482.

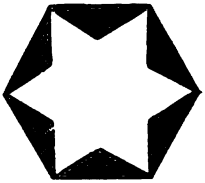


483.



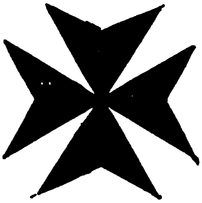
Enclose with six triangles the space of a hexagon.

484.



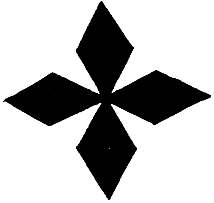
Invert the triangles, forming inside a six-rayed star, and outside a hexagon.

485



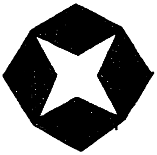
Join four Nos. 444 in their largest acute corners.

486.



Join four rhombuses in their sharp corners in the centre.

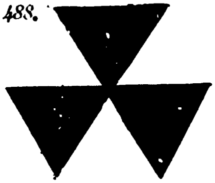
487.



Join these four rhombuses in the sharp corners, turning the obtuse corners towards the centre.

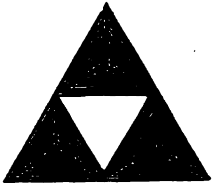
Join nine triangles into three equilateral triangles, and join these corner-wise in the centre.

488.



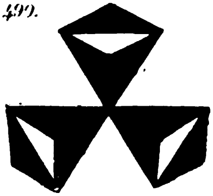
Join the same triangles so that they enclose the space of an equilateral triangle.

489.



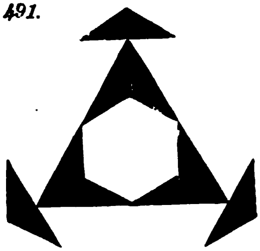
Make No. 488 again, and invert the outer triangles.

490.



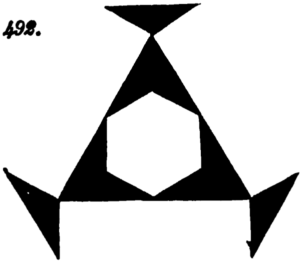
Make No. 489, and place the inner triangles outside, their base-lines touching the acute corners.

491.

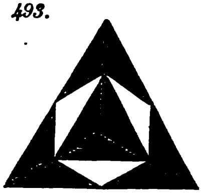


Reverse the outer triangles, corners touching corners.

492.

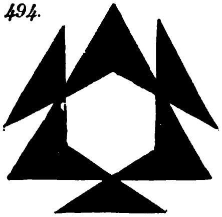


493.



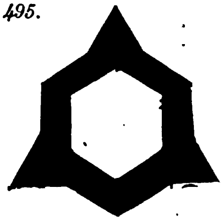
Make No. 472, and invert the inner three triangles.

494.



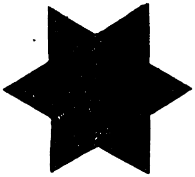
Take the inner triangles, and place them outside, the obtuse angles touching the centre of the sides.

495.



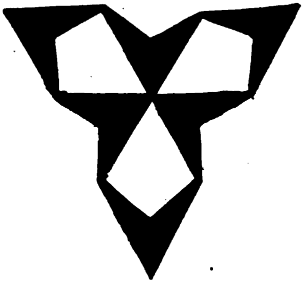
Invert the outer triangles so that the base-line of each of them touches the middle part of an edge of the large triangle.

496.



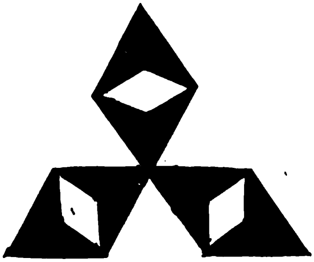
Join six rhombuses with the sharp corners turned to the centre.

497.



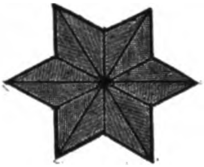
Take out every other arrow-head-like form, and invert them.

498.



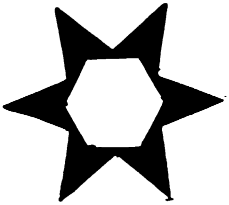
Join the same parts, corner to corner, with the parts of the central form.

499.



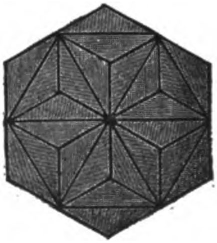
Now, turn the largest of the sharp corners of the six arrow-heads to the centre.

500.



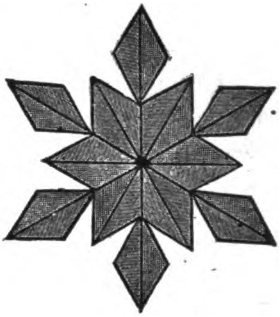
Invert the six parts, and the six-rayed star which appears encloses a hexagon.

501.



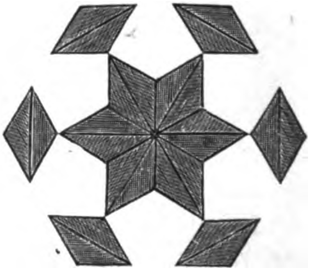
Make No. 499 again, and fit into each outer obtuse angle, with its blunt corner, a rhombus made of two triangles.

502.



Turn the rhombuses with their sharp corners into the outer obtuse angles of the inside star.

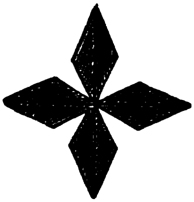
503



Place the rhombuses so that their obtuse corners touch the outside corners of the star.

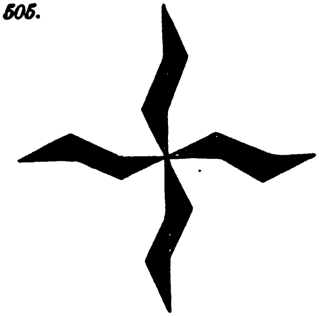
Forms of *beauty* may also be developed in the following manner:

504.



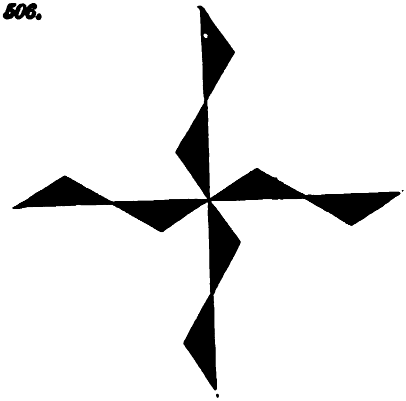
Four rhombuses may be joined in the centre in their sharp corners.

505.

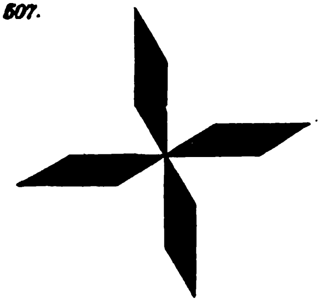


Every other triangle may be moved regularly around the remaining central form by inches and half inches.

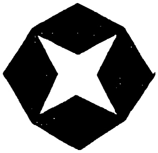
506.



507.

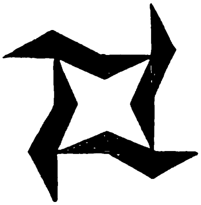


508.

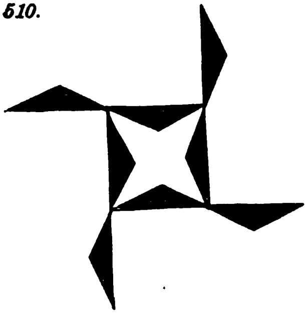


Or the starting-form may consist of the four rhombuses, turning their obtuse corners to the centre as in No. 487, and the outside triangles may be moved so as to revolve round the central form.

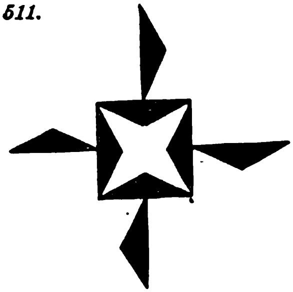
509.



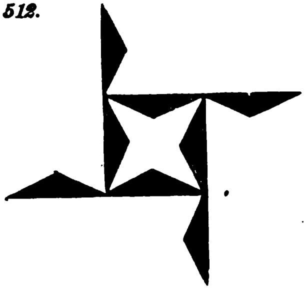
510.



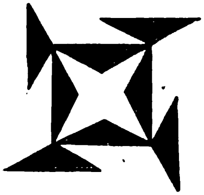
511.



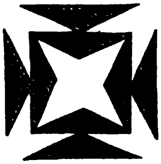
512.



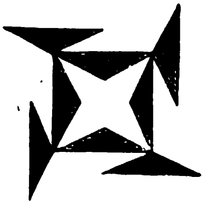
513.



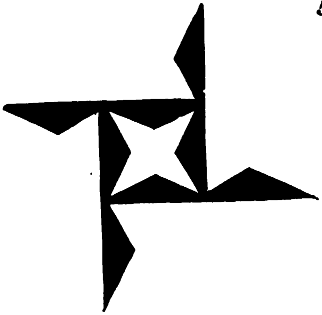
514.



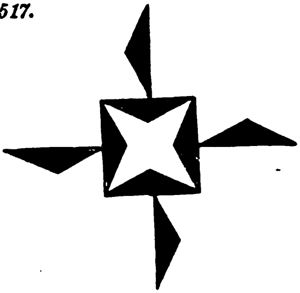
515.



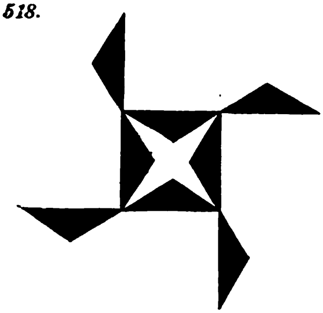
516.



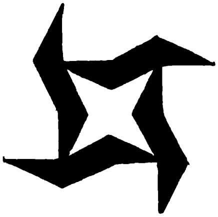
517.



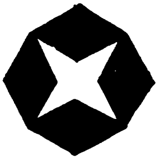
518.



519.

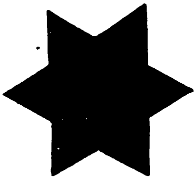


520.

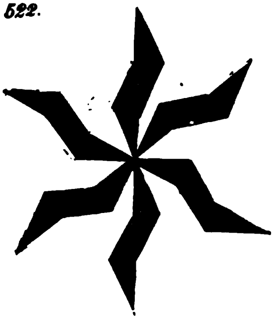


Six rhombuses may be joined turning their sharp corners to the centre; they will thus produce a symmetrical star.

521.

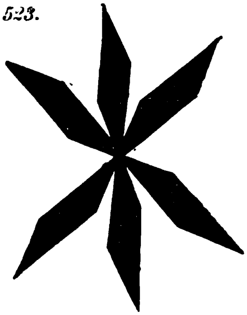


522.



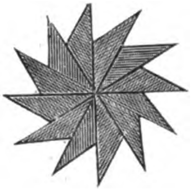
Every other triangle of the last form may again be moved out, and change its place, etc.

523.



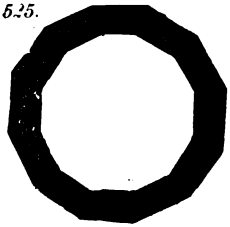
The same number of triangles may also be placed so as to form what looks like a circular saw, or "saw-wheel," as the children use to call it, by simply making No. 520, and then reversing every other triangle so that the base-line of each triangle touches a short edge of the next triangle.

524.



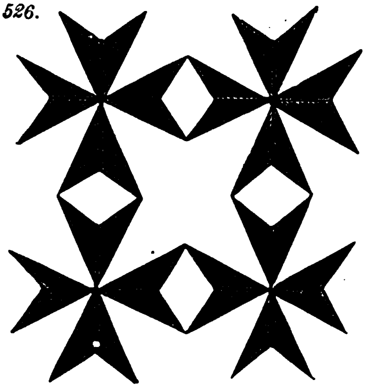
By reversing this form so that the other half of each base-line around the figure touches the other edge of the short triangle, a circular form (that is a ring) can be made with twelve triangles.

525.



All these figures can be repeated several times and combined into *one* form; for instance, No. 485 four times repeated, result in a very fine tessellated form, which would serve very effectively for inlaid floors, etc.

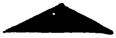
526.



The forms of *life*, also, begin with only *one* triangle, for which the child may be allowed to find a name, according to what its imagination may compare it. This is very likely to be

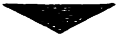
a hill, if the triangle is turned with its base-line towards you,

527.



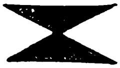
or a dish, if the base-line of the triangle is turned away from you.

528.



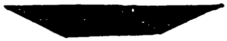
Two triangles joined in their obtuse angles may represent an hour-glass, etc.

529.



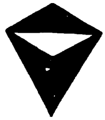
Of *three* triangles make a boat, that is, a trapezoid, the longest of its parallel lines turned away from you.

530.



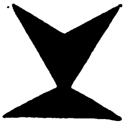
Of three triangles you can also make a kite, by forming a trapezium;

531.



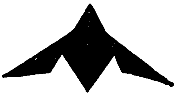
or a vase, by placing one triangle with its base-line turned towards you, and above this an arrow-head made of two triangles, the largest of the acute angles touching the obtuse corner; etc.

532.



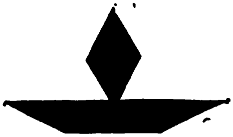
Of *four* triangles make a flying bird, by placing a rhombus up and down, and one triangle on each side, touching with half its short side the lower part of the upper edge of the rhombus.

533.



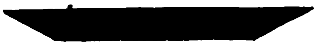
A boat with sail is represented by making a boat of three triangles, and placing a rhombus of two triangles up and down so as to touch the boat in the middle of the deck, and thus to represent the sail.

534.



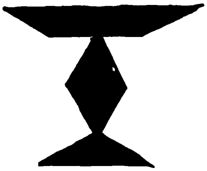
Of *five* triangles you can also make a long row-boat.

535.



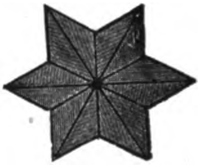
A pretty fruit-dish can be made of *six* triangles, simply by changing the boat with sail and adding another triangle, so that the sail is now placed *below* the boat, and beneath this the sixth triangle with its base-line turned towards you, its blunt corner touching the sharp corner of the rhombus.

536.



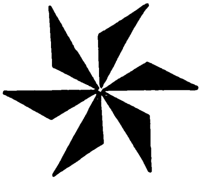
Thus the child proceeds, adding more and more triangles and developing as much as possible one form from the other. The child may also use more triangles, and make the same objects on a larger scale.

537.



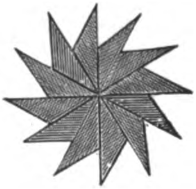
Of *twelve* triangles make six rhombuses, and let these meet again in the centre with their sharp corners;

538.



then take out every other triangle, and a turning figure remains.

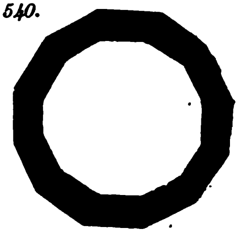
539.



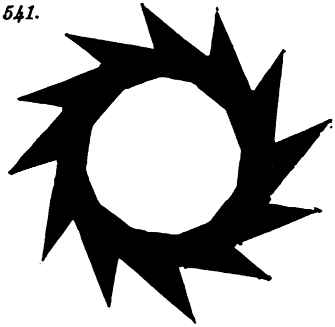
Now replace the tablets taken out—reversing them, and the circular saw or "saw-wheel" is formed.

Put twelve triangles together, a long edge touching a short one, as in No. 539 for the "saw-wheel", but this time forming a continuous circumference—or rather a ring—with the remaining short sides.

540.



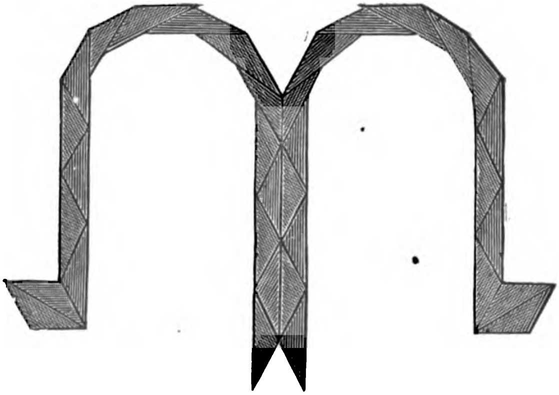
541.



By joining to this ring on the outside twelve more triangles in their short sides, another kind of "saw-wheel" is produced.

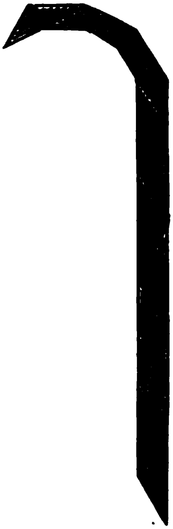
On the principle of joining the tablets as in No. 539 the following forms can be very well represented:

542.



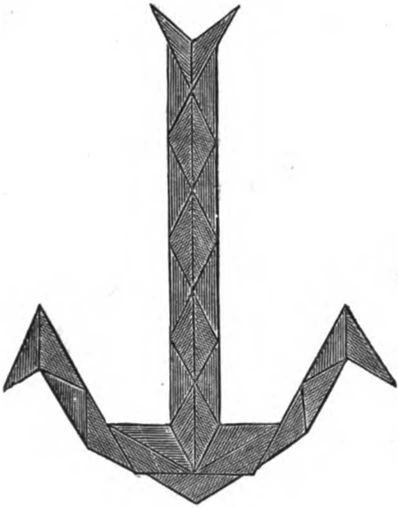
arches,

543.



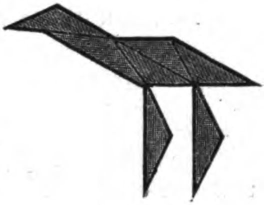
a cane,

544.



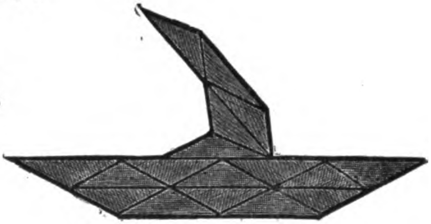
an anchor,

545.



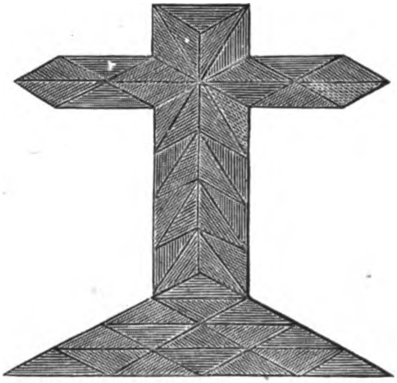
a plucked chicken,

546.



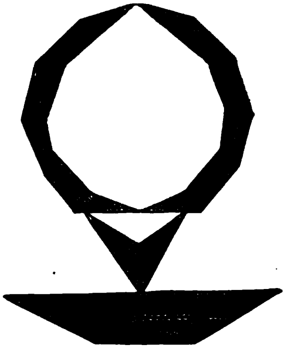
a steam-boat,

547



a cross with base,

548.



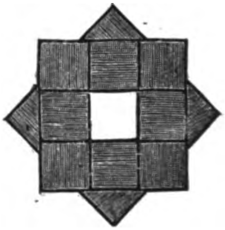
an air-balloon,

etc.

May the different kinds of tablets be combined for laying forms?

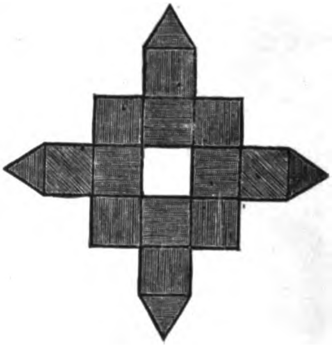
Yes; and it may be added, that in combining the different tablets,

549.



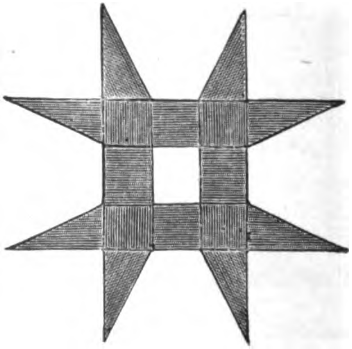
the squares and the isosceles right-angled triangles should be given first;

550.



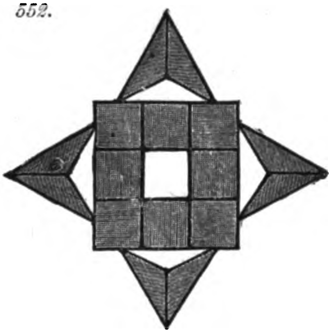
then the squares and the equilateral triangles;

551.



then the squares and the right-angled scalene triangles;

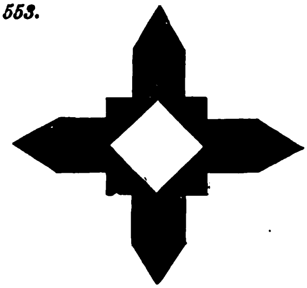
552.



then the squares and the obtuse-angled triangles.

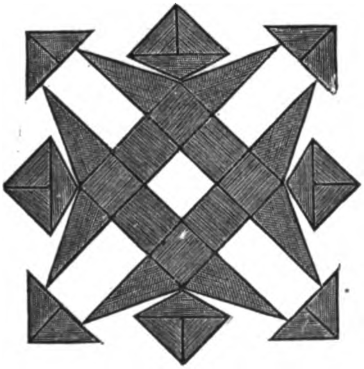
It is thought, that this will be found the proper order of progression, one series following the other naturally.

553.



Then *three* different kinds of tablets may be combined, for instance: squares, isosceles, and equilateral triangles;

554.



then *four* kinds of tablets, for instance: squares, isosceles, scalene, and obtuse-angled triangles.

At last the child may be encouraged to manage the *five* different kinds of tablets conjointly, consulting its own powers of combination and invention.

If we glance back through this series of elementary forms, and realize how few in number and limited in variety are these elements, and how numberless the combinations of which they are susceptible, we are reminded of the twenty-six letters of the alphabet and the infinite possibility and variety of their combinations.

THE EIGHTH GIFT.

THE CONNECTED SLAT.

From the concrete to the abstract, from the solid to the plane or surface, and from this to the edge of the solid or plane, that is, to the embodied line—the stick—is a long step in the process of analysis. New impressions are brought about gradually in the true order of the kindergarten, and objects and ideas presented to the child are always developed in natural sequence. The gap above referred to is bridged by two Gifts representing partly the plane and partly the edges of the surface in such a tangible form, that the whole edge can be seen, handled and readily understood.

The *Connected Slat* represents the embodied edge of *the whole* square, triangle, pentagon, or whatever may be the figure that is represented; it is the outline form of the plane, and, owing to the breadth of the slats, is still a considerable part of it. It may be lifted up to view, and the child may see it clearly on all sides, as its properties are being pointed out. The next Gift, the *Disconnected Slat*, on the other hand, represents the embodied edge of *one side* only of the plane, though, when interlaced with other slats, a *surface-like form* is represented.

What is the Connected Slat?

The Connected Slat consists of ten slats, each four inches long and half an inch wide, each overlapping the next one at the end and fastened to it by a rivet so that all can be folded up or unfolded and moved into different forms, either geometrical, or symmetrical, or into representations of objects. This slat should be marked off in inches, thus serving also as a measure.

Frœbel's idea was to have the slats so jointed together, that they could be unhinged and thus the Connected Slat resolved into its component parts; but the separation of the parts does not add to the clearness of the forms; for those parts which are not used, may be doubled up and concealed by being held in the hand.

The material in this Gift is all prepared as in the former Gifts, and the parts have only to be pushed into place. The Connected Slat resembles very much the carpenter's rule, and like it unfolds into *one* slat, that is stretched out to the combined length of the ten slats.

What is the aim of this Gift?

It shows, how one form is the outgrowth of the previous one, for instance: the rhombus of the square;—the rhomboid of the oblong, etc.

Besides, it offers the best starting-point from which to study the different angles to the greatest advantage,—thus, by turning a right angle about in all possible positions, it prompts a solution of the puzzling problem as to what constitutes a right angle, and demonstrates that the latter need not necessarily be made by a horizontal and a vertical line.

The parallel lines are also distinctly shown in all possible positions. The child being thus prepared, will have no difficulty with the following Gift—the Disconnected Slat or Slat-interlacing.

How are the different forms made with the Connected Slat?

By merely shifting its component parts with one hand, while holding it free in the other, or after placing the form on the table.

These forms are not so easily undone; they may be handled without falling to pieces, and the corners and edges are not displaced by being touched; every form thus becomes very tangible and real, and many a new truth presents itself to the mind of the child.

In what order do the exercises with this Gift proceed?

The forms of *knowledge* here again constitute the main point of the occupation on account of their large number and the mathematical ideas which they represent and which appear intuitively.

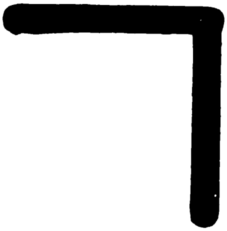
The Connected Slat contains a variety of forms in regard to the *elements of geometry*, and therefore it is one also of the first means by which to connect the kindergarten with the school. The old rules: "from the simple to the complex" and "from the whole to the parts" here also find application. Number is again the leading principle.

After the slat has been opened, measured on the table, examined with reference to all its parts and its material, and folded up again so that it takes up scarcely more room than one single slat, all the different directions are shown with the closed slat, which now represents *one* slat, as it were, and which is held up and down—from right to left, from front to rear, and in the two opposite slanting directions.

1.

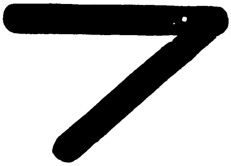
With *two* slats the different angles are made.

2.



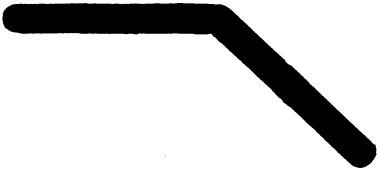
The *right* angle is first made with the help of the lines which form the square network on the table; the angle may be then turned and held in various positions.

3.



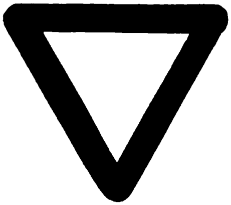
The *acute* or pointed angle is next made by moving the end of one slat towards the end of the other, and the child will notice, that there are many different sized acute angles between the upright side of the right angle and the single straight line, that is represented when the slats are closed up.

4.



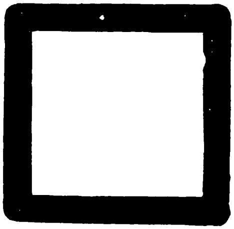
The obtuse or blunt angle of various kinds can be similarly demonstrated by opening out one of the two slats forming the right angle.

5.



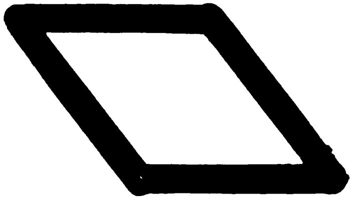
Three slats the child will find to be the least number that will inclose a space; it forms of them an equilateral triangle, which is immovable, and therefore a fixed form.

6.



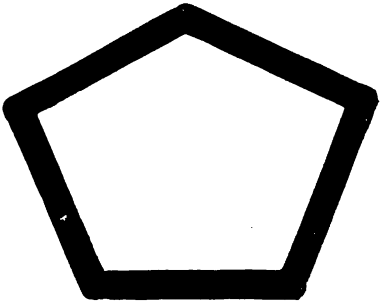
Four slats form the square, which, by pushing the opposite diagonal corners either in or out, is

7.



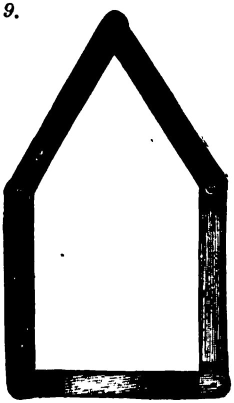
changed into a rhombus, which the child will now easily understand, with its equal parallel sides and obtuse and acute angles.

8.



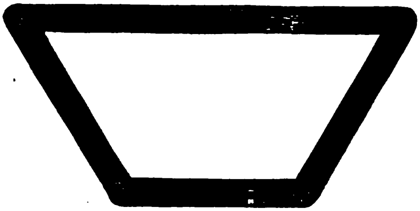
Of *five* slats the pentagon is made with its five equal obtuse angles and five equal sides. In the first attempt to make this regular five-sided form, the child probably, and naturally, will make

9.



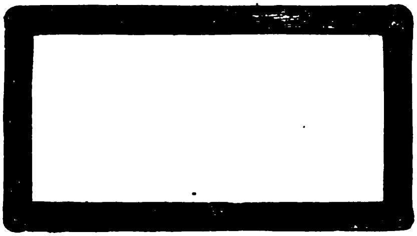
a "house-shaped" five-sided form.

10.



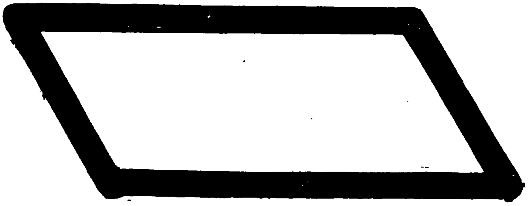
The trapezoid or "boat-shape" is also made.

11.



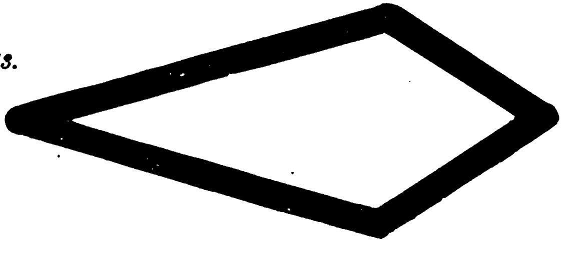
Of *six* slats the oblong

12.



and rhomboid are made,

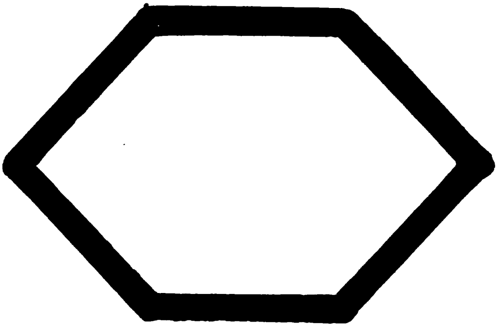
13.



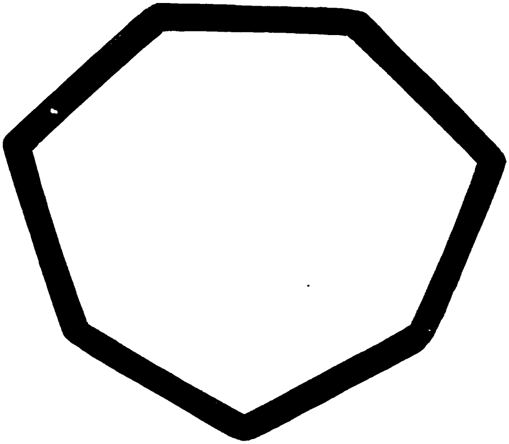
as well as the trapezium

and the hexagon, to which latter the cells of the honey-comb may be compared, thus to create new interest.

14.

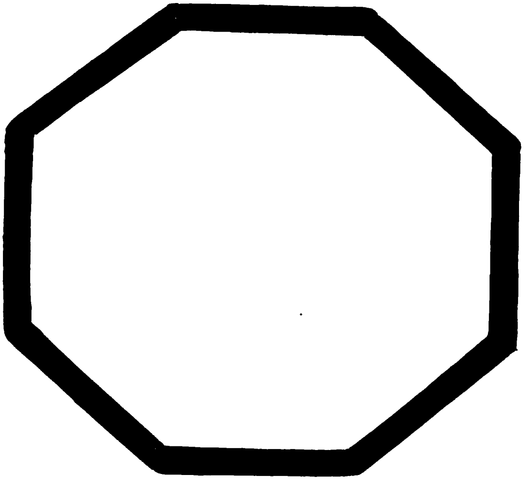


15.



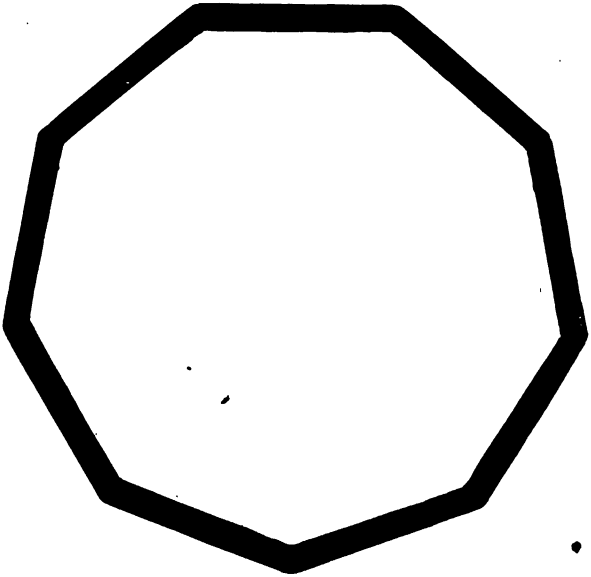
Seven slats will form a polygon of seven sides — the heptagon — which the child will call the seven-sided figure, just as it will call the pentagon and hexagon, the five and six-sided figure, respectively, etc.

16.



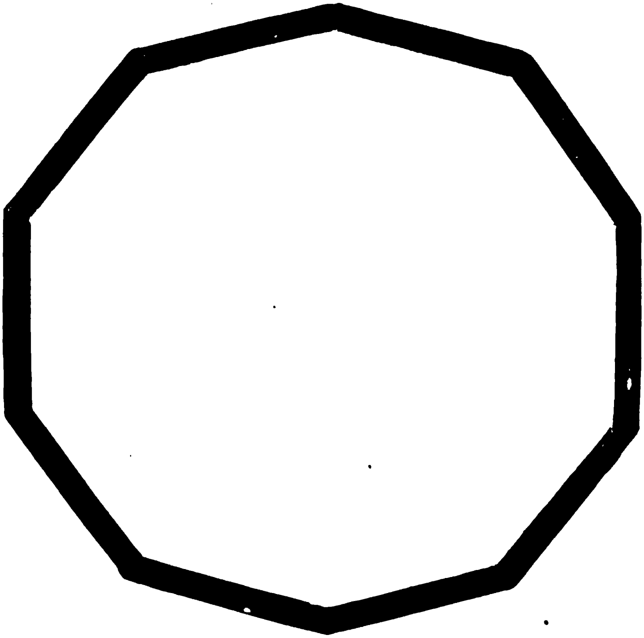
Eight slats make the octagon or eight-sided form.

17.



Nine slats make the nonagon or nine-sided form.

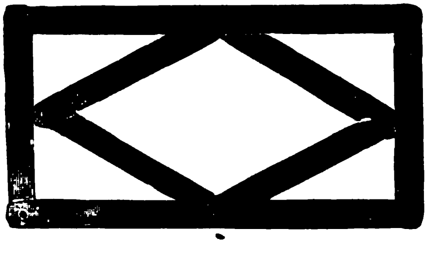
18.



Of all *ten* slats the decagon or ten - sided form is made.

After this, a combination of the different forms of knowledge may follow; for instance:

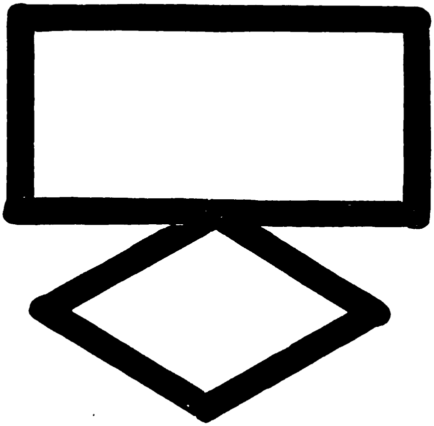
19.



Make an oblong with a rhombus inside.

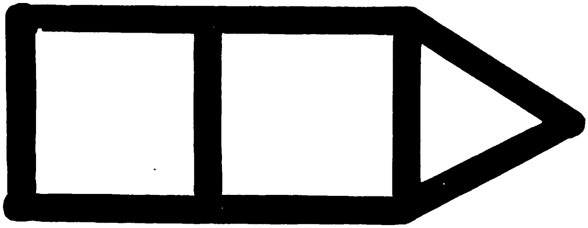
20.

An oblong with a rhombus outside, the latter touching with an obtuse corner the middle of the long side of the oblong.



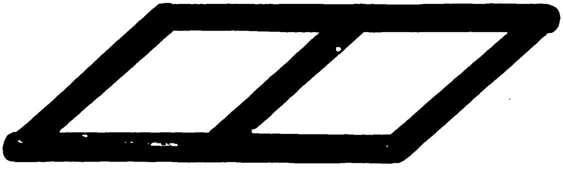
21.

Two squares and an equilateral triangle touching in the sides.



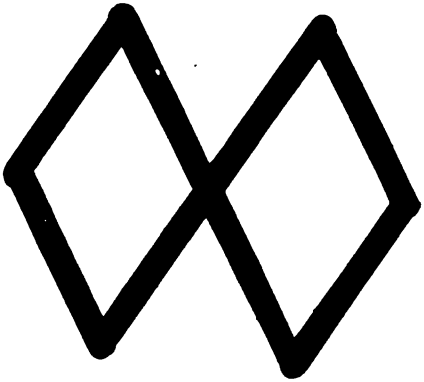
22.

Two rhombuses joined at the sides,



23.

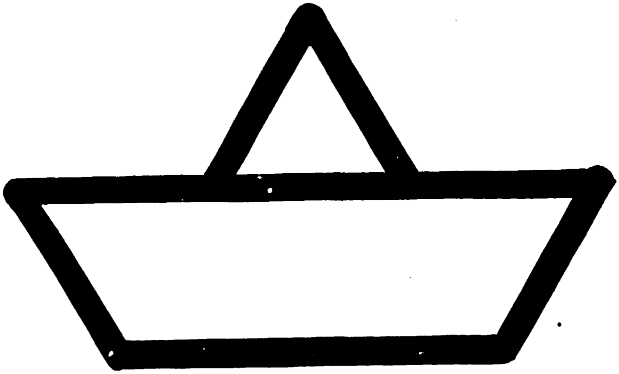
then at the corners.



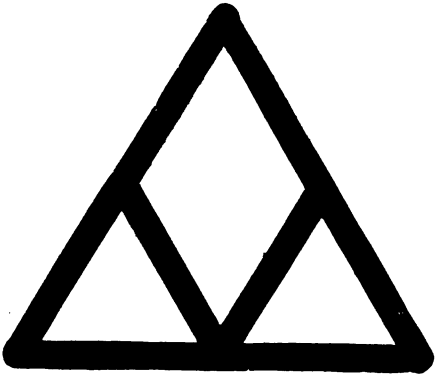
In the same way, two pentagons, a pentagon and a triangle, a pentagon and a square, a pentagon and a rhombus, etc., may be joined at the sides, as well as at the corners.

24.

A trapezoid with an equilateral triangle.

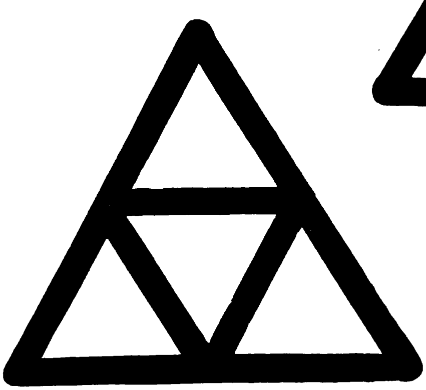


25.



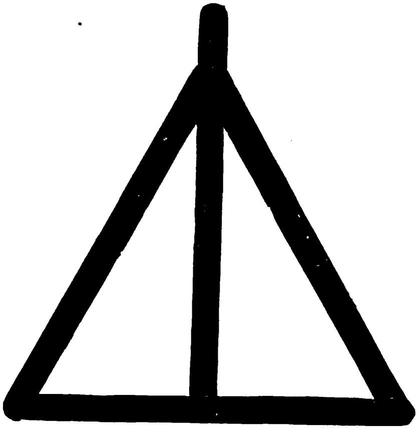
A rhombus and two equilateral triangles within a large equilateral triangle.

26.



Four equilateral triangles within a large equilateral triangle.

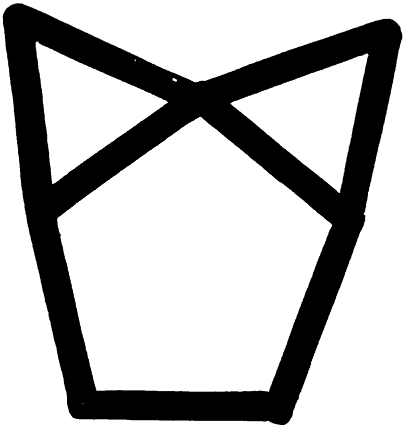
27.



Two scalene triangles within an equilateral triangle.

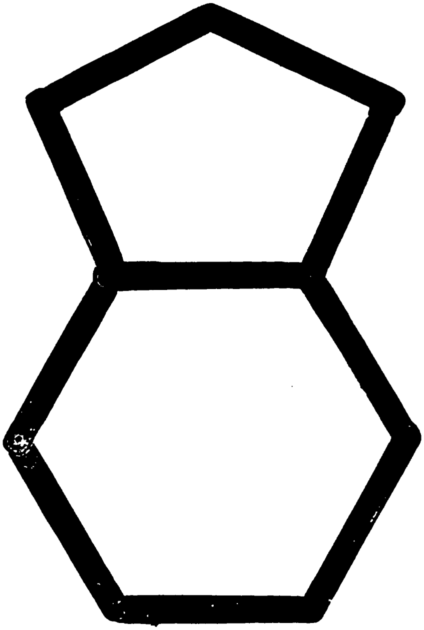
28.

A pentagon and two equilateral triangles.

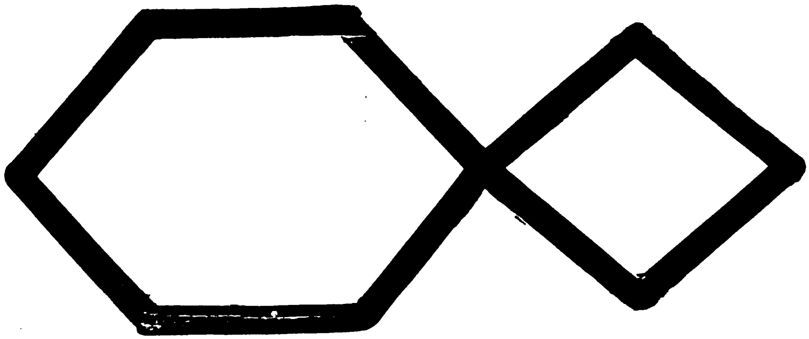


29.

A pentagon joined to a hexagon at the sides.

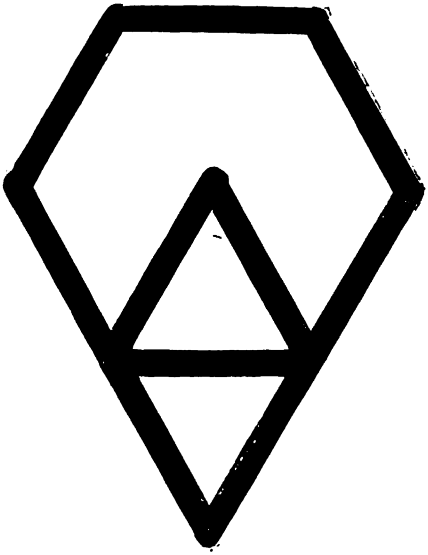


30.



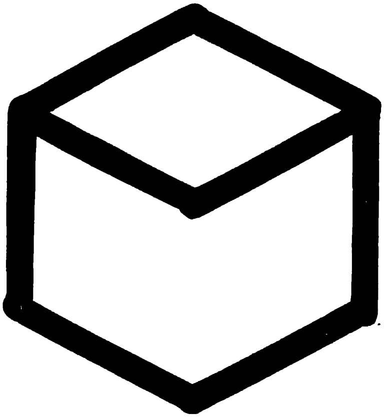
A hexagon and a rhombus joined at the corners.

31.



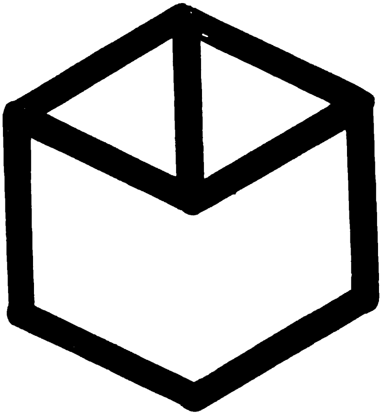
A hexagon and two equilateral triangles, one within, one outside.

32.



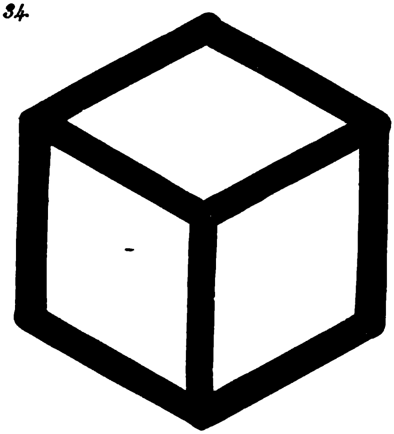
A hexagon with a rhombus inside.

33.



A hexagon with two equilateral triangles inside.

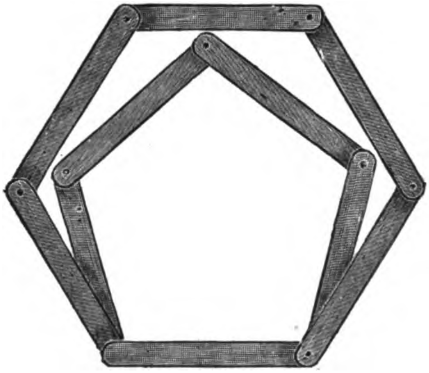
34.



A hexagon with three rhombuses inside.

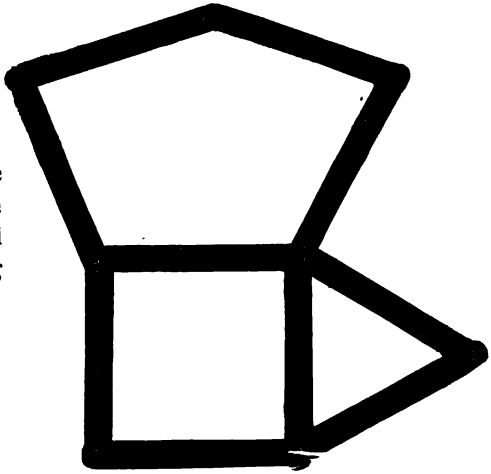
35.

A hexagon with pentagon inside.

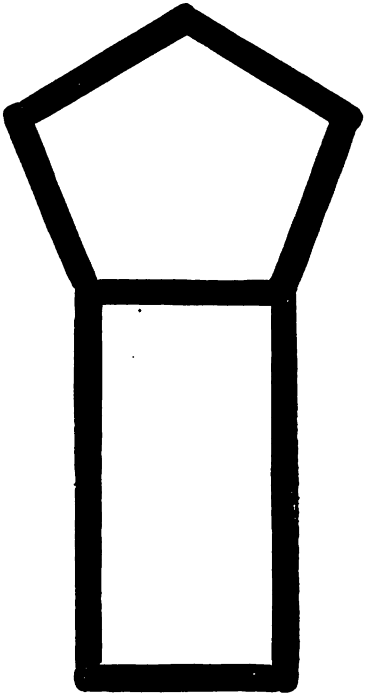


36.

A pentagon, and a square joined at the sides, and an equilateral triangle joined to the square and touching the corner of the pentagon.

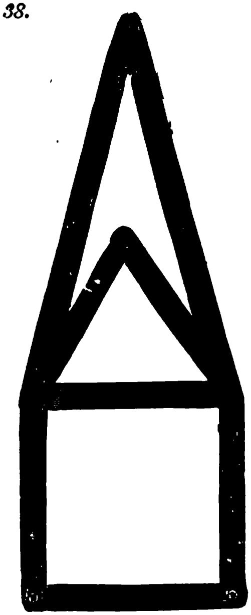


37.



A pentagon and oblong joined at the sides.

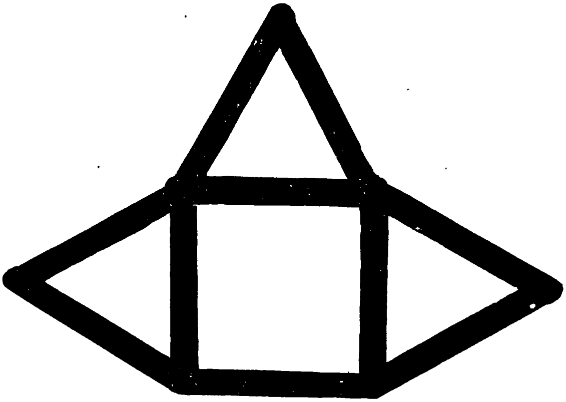
38.



A square, an isosceles triangle, and within the latter an equilateral triangle joined.

39.

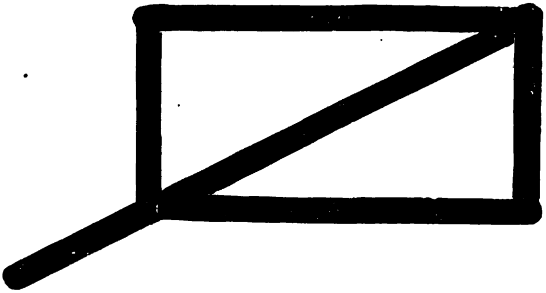
A square and three equilateral triangles.



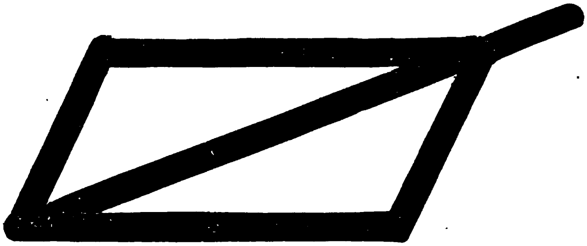
In a similar manner may be joined:
A heptagon and an equilateral triangle at the corners.
A heptagon with an equilateral triangle inside.
A heptagon with a rhombus inside.
A heptagon with a square outside.
A heptagon with a pentagon inside.
A heptagon with a hexagon inside.
A heptagon with a square inside.
An octagon with an equilateral triangle inside.
An octagon with a rhombus inside.
Two isosceles triangles.
A trapezium with a square inside, etc.

40.

An oblong may be divided diagonally into two right-angled scalene triangles.



41.



A rhomboid may be divided diagonally.

These examples will show to what extent instruction may be given, and that the Connected Slat is of particular value to older children. It prepares the way for real work. Thus, by constant repetition the child becomes familiar with the geometrical forms, and does not become wearied, some new idea being constantly given. Repetition may thus become rather attractive, and in this possibility lies one of the chief points of strength of the kindergarten. At first the children are merely learning to play rationally, but there will soon arise within them as great a desire for work and study, when, in school, the old acquaintances of the kindergarten will be met with delight and great interest.

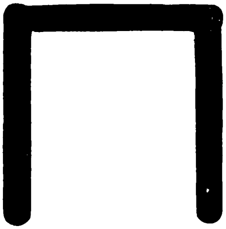
In what manner are the forms of life represented?

One slat may represent: a board, a post, a ruler, the leg of a table or chair, a mast, a flag-staff, etc.

Two slats: a flag, a tent, a mountain, a whip, the bill of a bird, etc.

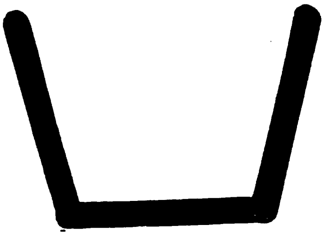
Three slats:

42.



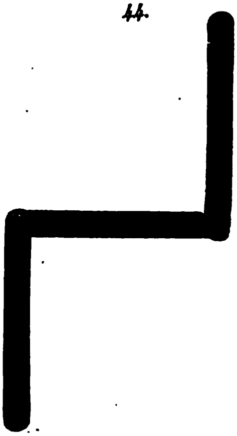
a table,

43.



a flower-pot,

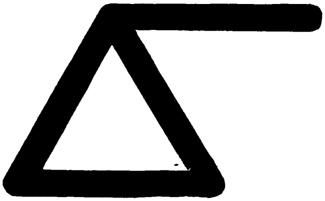
44.



a step,

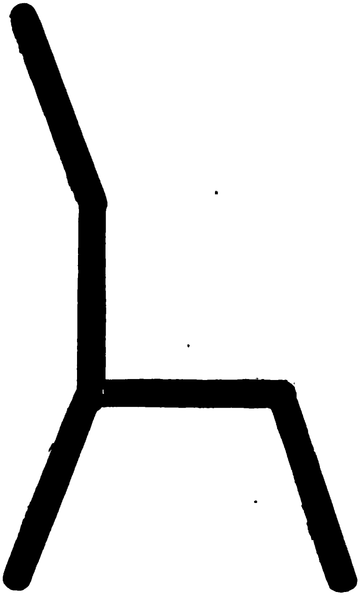
etc.

45.



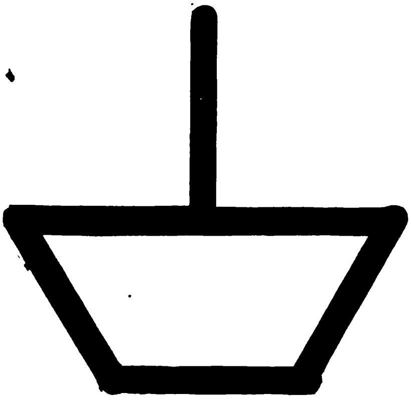
Four slats: a hatchet, a tub,
a long table, a window,
etc.

46.



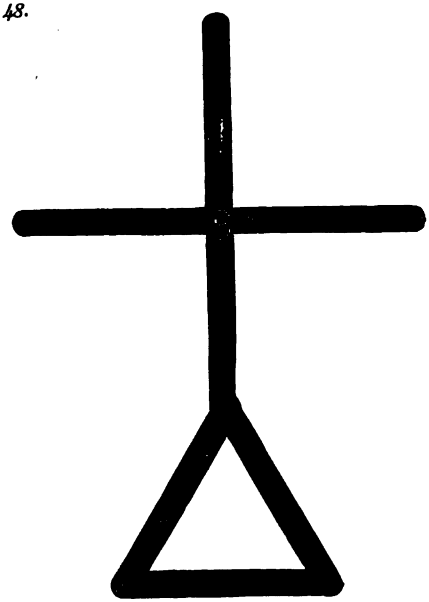
Five slats: a chair, a flag,
a sign-board, a window,
etc.

47.



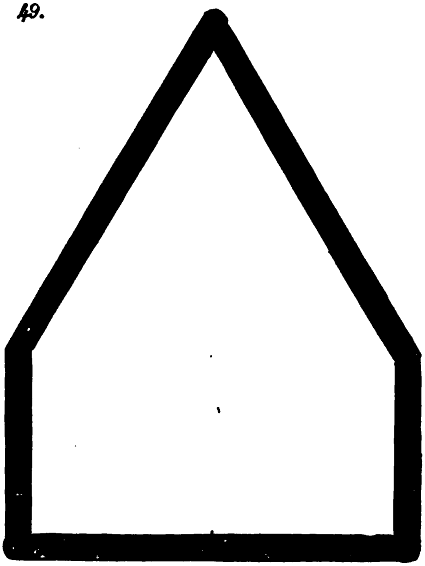
Six slats: a boat with mast,
another flag, a hat,
etc.

48.



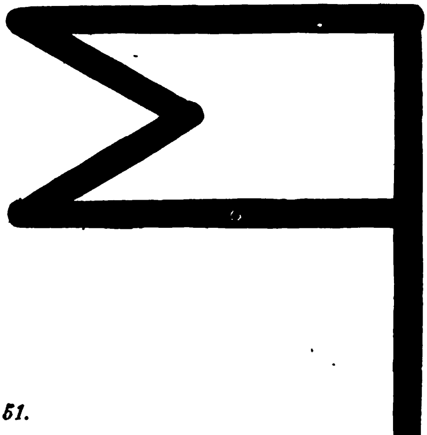
Seven slats: a cross, a bedstead, a shoe, a boot, a cottage,
etc.

49.



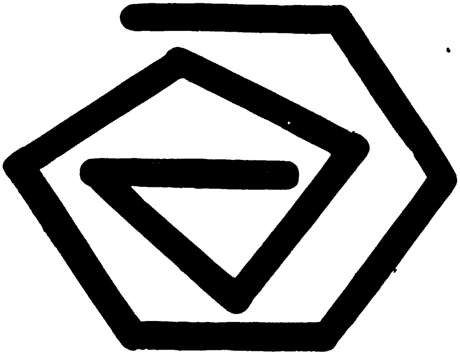
Eight slats: a house, a stair-case, a hat,
etc.

50.



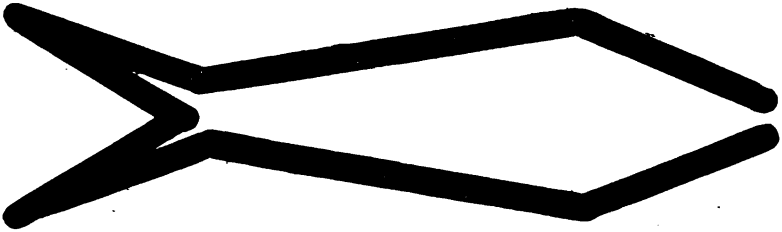
Nine slats: a flag, a bottle, an umbrella, a boat, a rocking-chair, etc.

51.



Ten slats: a snail,

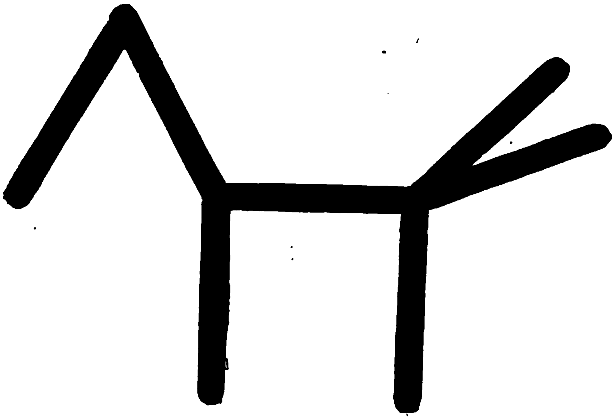
52.



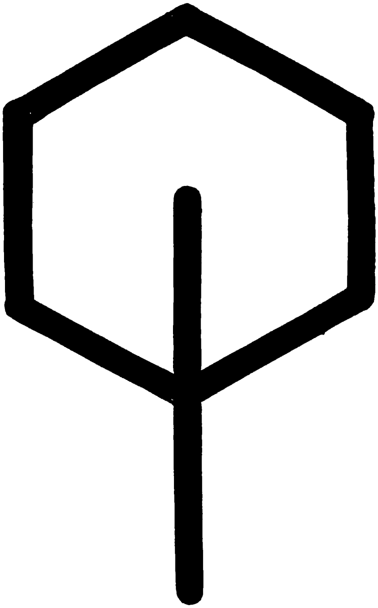
a fish,

53

a bird,

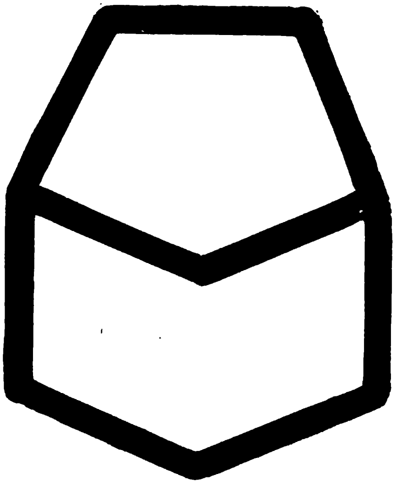


54.



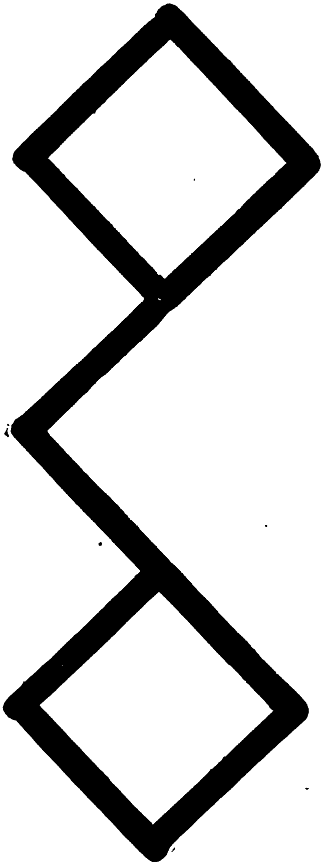
a fan,

55.



a basket,

56.



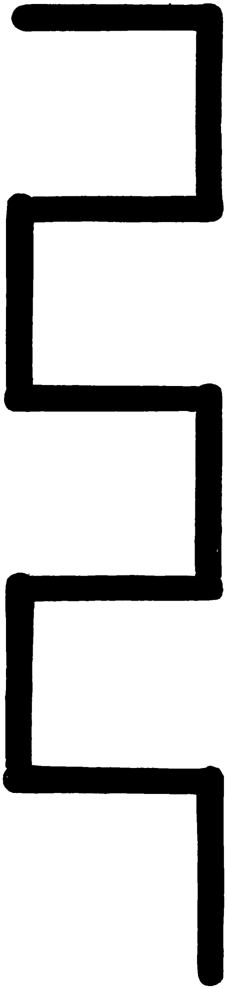
spectacles,
a crown,
scales,
a house,
etc.

These forms may serve only as suggestions, for the child can use its inventive powers in producing many other forms and figures.

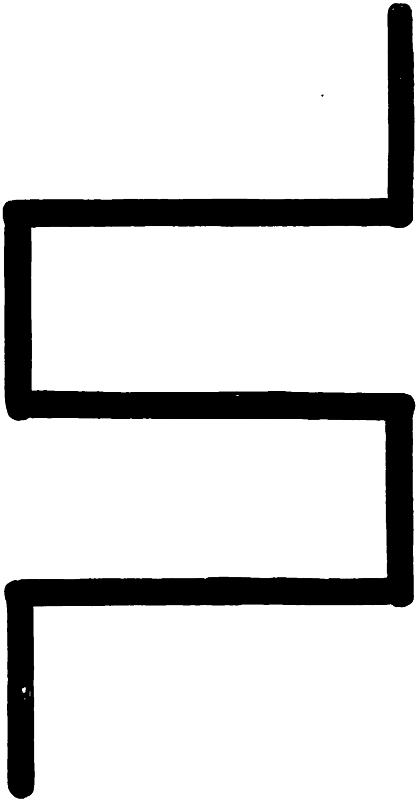
The number of forms of *beauty* or symmetry produced with this Gift is very limited.

Borders of various kind can be made, for instance:

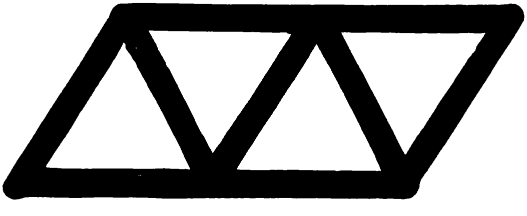
57.



58.

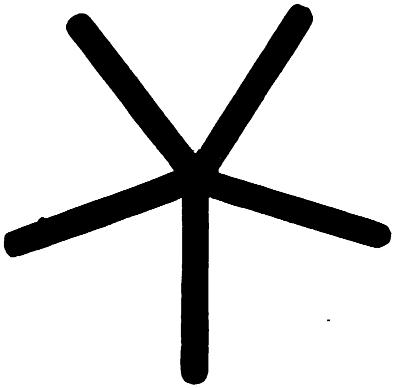


59.

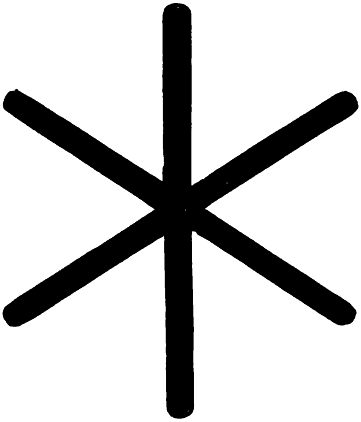


also five and six-rayed stars; the regular polygons may also be looked upon as representing forms of symmetry.

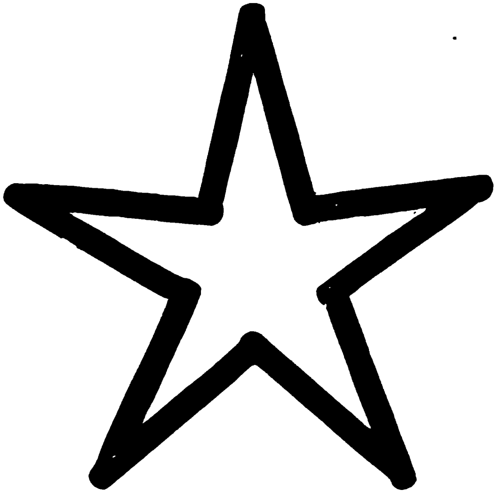
60.



61.



62.



When may the Connected Slat be introduced in the kindergarten?

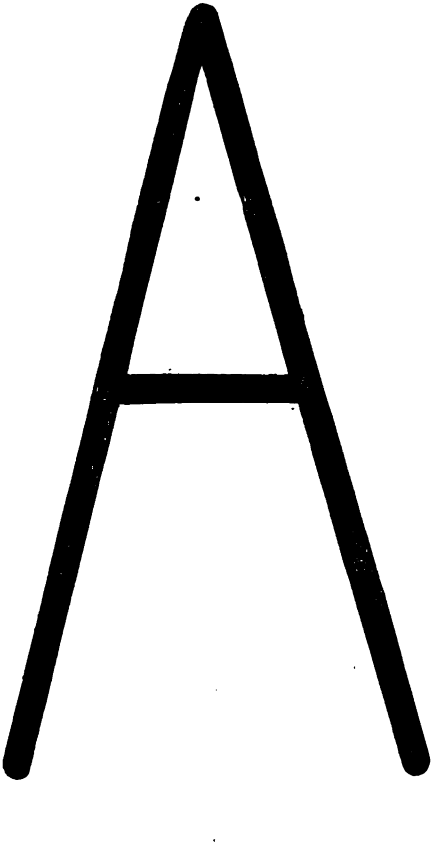
It may be introduced to great advantage at an early age; it will be received with interest, and will prove an fruitful source of entertaining and instructive lessons.

It is an aid to clearly understand the direction of lines, the angles and the parallel lines, and shows the geometrical figures very perfectly.

By constantly repeating what we have gone over already in other Gifts or Occupations, but in such a fresh way and by such varied means as to always keep the interest alive, this Gift proves very valuable as it will render more clear the forms with which the child has become previously acquainted. The child can now hold in its hand, in outline forms, each as a whole, the various mathematical figures formed on the table by the blocks, bricks, and tablets.

Numeration may be taught, measurements taken, and letters and numerals made.

63.



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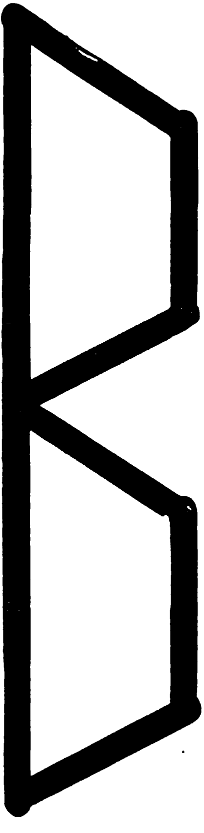

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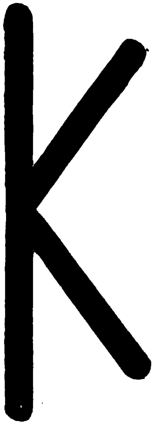

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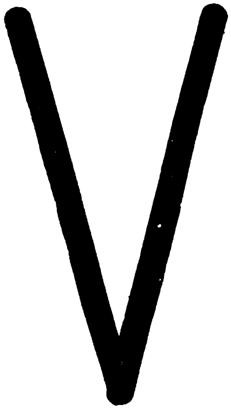

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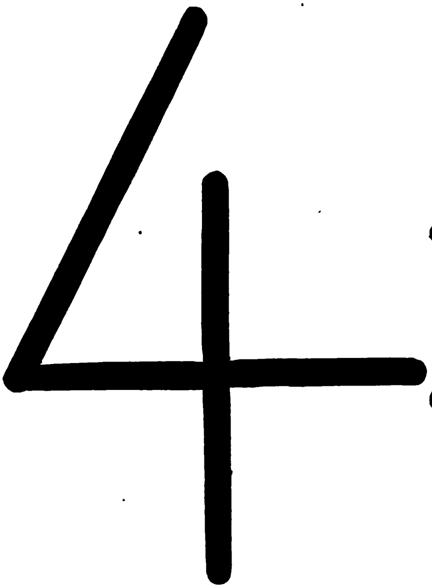

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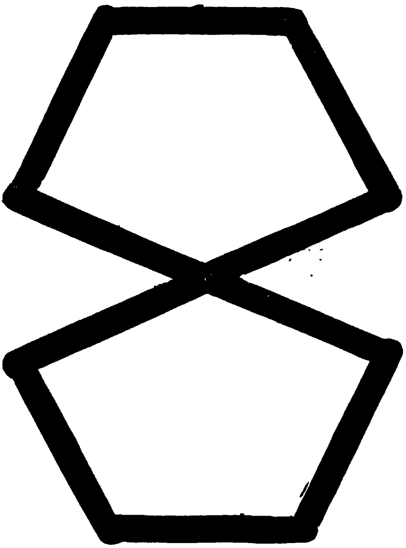

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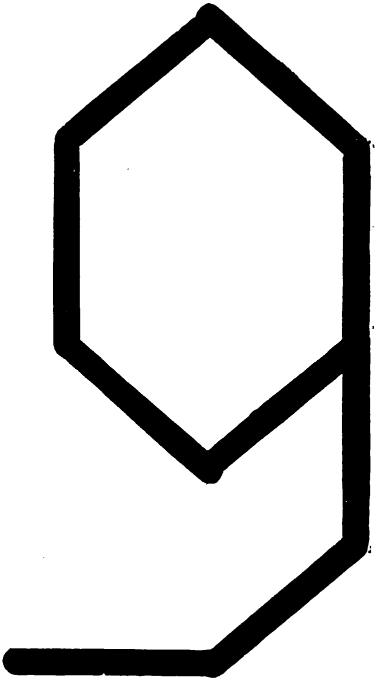


With this material in its hands, the child will readily produce an endless variety of forms.

The Connected Slat will thus prove indeed a "magic wand" or "fairy rod" in the hands of those who know how to handle it—as well in the kindergarten as in the school. By it the hand, the eye, and the mind are alike exercised.

THE NINTH GIFT.

THE DISCONNECTED SLAT
OR
SLAT-INTERLACING.

This is probably one of the most familiar forms of play, but it bears a far deeper meaning than is, at first, imagined.—Frœbel did not invent any thing; nothing in his Gifts or Occupations was altogether new, they had all been more or less practiced before his time. But by observing and studying all the childish games he united them into one harmonious whole and adapted them as means of education and practical mental development. And through his method of regular and graduated procedure the possibility is given of producing an almost inexhaustible variety of formations. Each, in its peculiarity, has an effect on the child's mind, and thus helps to educate it.

Who has not attempted interlacing, when a child? The country children, when tired of play, may be found seated, weaving grasses, or the twigs and sticks from the willow-tree, or straw, or rushes; but only a limited number of forms are produced by them. Slats are used by many for picture-frames, baskets, wall-pockets, etc.; but in the kindergarten they are *so* utilized as to become means for mental development. The relation of this to the other Gifts has been indicated in the Connected Slat.

What is the material used for this Gift?

Wooden slats of varying lengths, widths, and textures. Those usually employed in the kindergarten, are 25 centimeters (about 10 inches) in length, 1 centimeter (about ⅖ inch) in width, and 1 millimeter in thickness. Other slats are also employed, differing form these, more or less, in length, width, and thickness.

The slats may be given in bundles of ten or twelve. A dozen slats are sufficient to represent a considerable number of figures. While the children are happily occupied in making the various pretty forms, they are also learning available lessons in geometry; they are impressed in a simple way with the truth, that it is not *the greatness* of the attempt that makes work satisfactory, but *the degree of perfection* with which the design is wrought out—however simple it may be.

Slats of a finer texture, such as are commonly used for picture-frames or segar-lighters, are better adapted for making forms of life, or small and pretty combinations of the geometrical stars which may be used for purposes of ornamentation. With the help of scissors their length can be easily regulated; but this process would be advisable rather for the more advanced children.

How is the interlacing done?

The slats are placed over and under each other alternately, so that they retain and hold each other, forming thus a firm whole. This is, of course, far more difficult than shifting the Connected Slat into shape.

What method is followed in this Occupation?

As in other Gifts and Occupations, so also in this, *number* decides the form. With one, two, or three slats it is not possible to interlace a form; but with *four* slats this can be done. Forms made of five, six, seven, eight, or more slats then follow.

How is this Gift introduced?

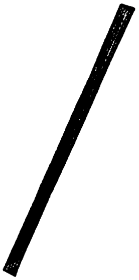
The child receives, at first, but *one* slat, studies it, and finds that it is made of wood, that it is pliable, that it will break when bent too much, that it burns to ashes when thrown into the fire, that it is much longer than it is broad, and again much broader than it is thick.

1.

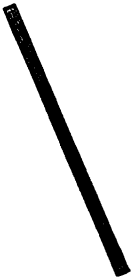
2.

The slat is held from the top downwards, — then from left to right, — and from front to back, also inclined to the right and to the left.

3.



4.



The child should name something else that is also made of wood.

The slat may be likened to something, as, for instance, to one of the rafters of the roof, or the wooden planks forming the floor, to the ruler, the pendulum, etc.

The slat may be measured on the table, and used as a measure, to determine the length and breadth of the table, etc.

The child perceives that the slat has two plane sides and two ends; the middle is also found. By questions the child is led to find the upper and lower side, the position of the edges, etc., and thus becomes acquainted with the exterior of the slat.

The elasticity of the slat is a matter for observation.

For instance: the slat can be bent, but when left alone, will become as straight as it was before.

On placing a slat firmly half-way on the table, and pressing the projecting part down, and then letting it quickly go, or rebound—a buzzing noise or whirring sound will be heard, and the vibration is plainly visible, showing the elasticity. The sound varies according to the length of the projection beyond the table; the difference in thickness of the slat causes likewise a difference of sound. The rudiments of time-measuring can thus be practiced by producing this sound at even intervals of shorter or longer duration. The whole class of children may make an amusing chorus in this manner, and may be trained in precision and attention, by being allowed to sound the slat each in turn successively with a regular rhythm, or all together at one and the same time.

A number of pleasant little exercises may be introduced, while the children are becoming familiar with the slats. For instance: an impromptu band of music might be formed—the drummer using two slats to beat upon the table, as the imaginary drum; while another child uses its slat to play the fife; a third uses two slats for the trombone or sackbut; a fourth sounds the trumpet, etc.

Or, the children may call one slat a wooden board, and another slat a saw, and while they are pretending to saw the board, they sing:

"Let us now begin our sawing,
Forward, backward, pushing, drawing,
Sawing, sawing wood into —
Little pieces —
Bigger pieces —
See-saw, see-saw, see-saw, see!"

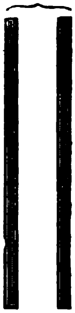
LIBRARY OF THE UNIVERSITY OF CALIFORNIA.

5.

6.

Two slats may be placed in various positions on the table. They may form one long continuous line in different directions; or, two *parallel* lines, which the child calls lines at equal distance. Such parallel lines at one, two, or three inches' distance may be made with three, four, five, or more slats.

7.



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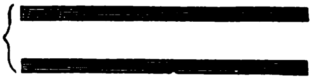

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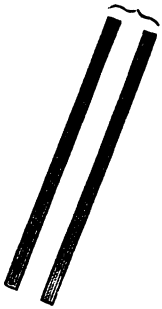

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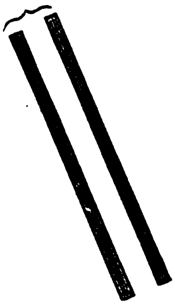

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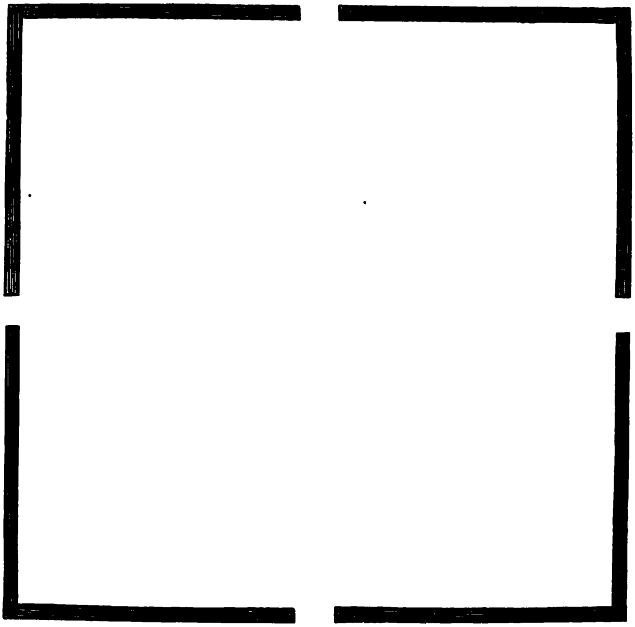
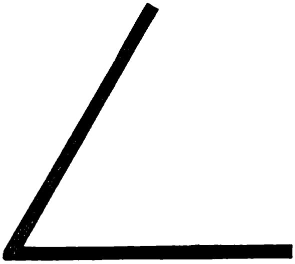


Let the child find out how many right angles in different positions can be produced with *two* slats.

12.



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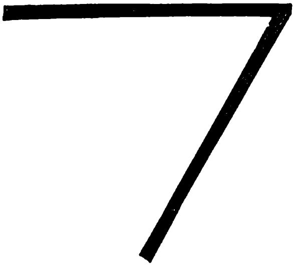
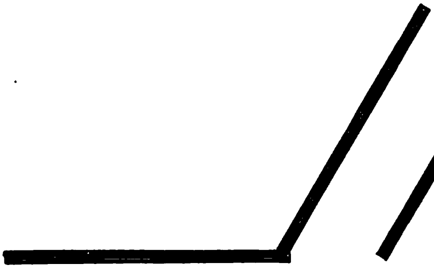


also, how many acute and obtuse angles.

14.



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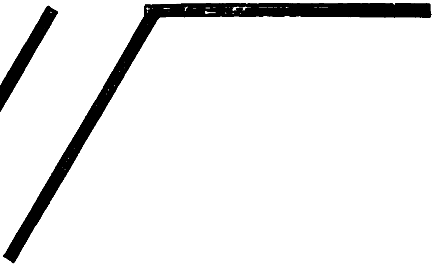

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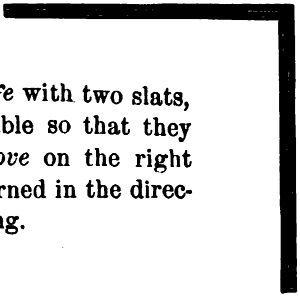
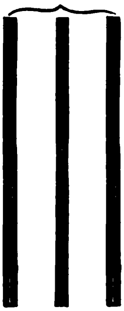


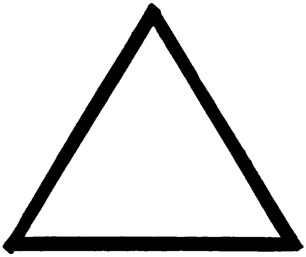
The child may also represent forms *of life* with two slats, for instance, by laying two slats on the table so that they join at the ends, forming a right-angle *above* on the right or left side. This may be called a flag, turned in the direction in which the wind is supposed to be going.

17.



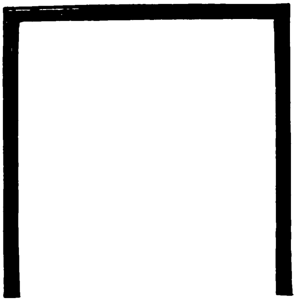
With *three* slats — not to mention the different positions and increased number of angles

18.



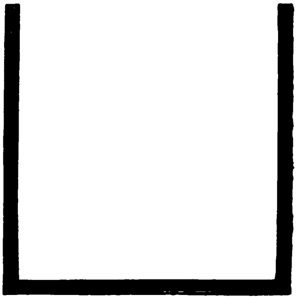
a triangle can be laid;

19.



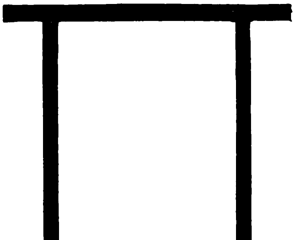
a bridge,

20.



a tumbler,

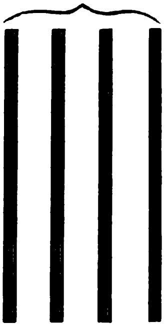
21.



a table, and other forms of *life*, can also be represented.

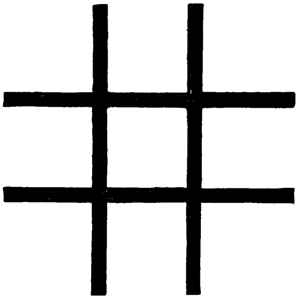
But nothing that the child represents with *three* slats, has any hold; it cannot be raised from the table as *one* form. This can be effected only by the use of *four* slats, and with these *only*, when each slat comes in contact with *three others* in such manner as is done in mat-weaving, that is, when the slats are laid alternately over and under each other. This is not always easy,—but the trouble which it gives, and the reflection necessary, will bear ripe fruit in the child's development.

22.



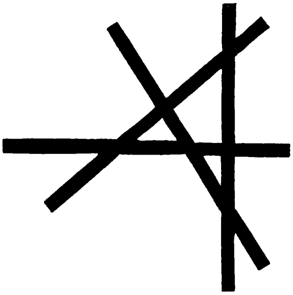
In this Gift, also, several children may join in making one piece of work.

23.



The first form obtained by interweaving four slats is made, by first laying one slat up and down (vertically) on the table, crossing this one in slanting direction by another slat, and weaving the two remaining slats into this, so that all the slats come in contact with each other—always one over, one under, enclosing the spaces of one trapezium and two triangles.

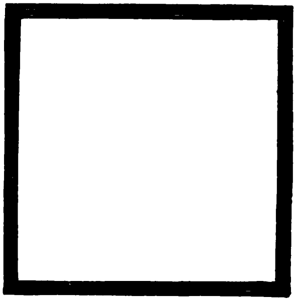
24.



The four slats may also be used, by laying them on the square net-work of the table, to let the children represent:

a square,

25.



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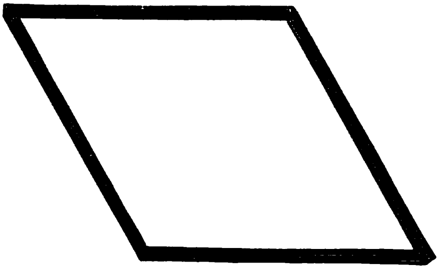
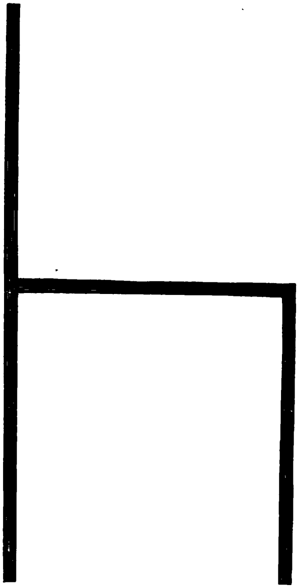


a rhombus,
etc.;

also forms of *life*,
for instance:

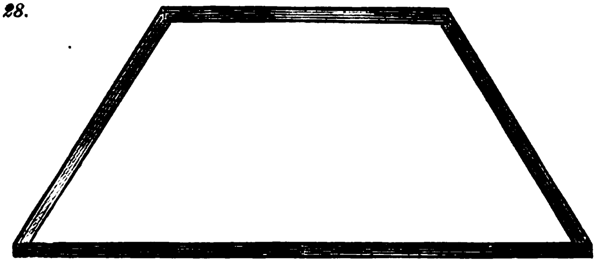
27.



a chair,
etc.

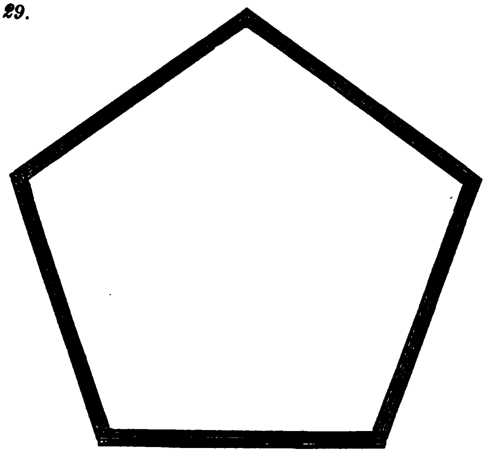
28.

With *five* slats



a trapezoid
and

29.

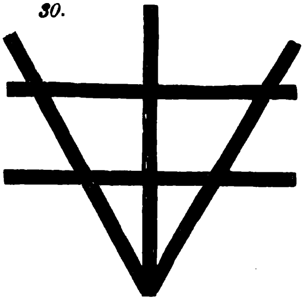


a pentagon,

as well as forms of *life*, may be laid.

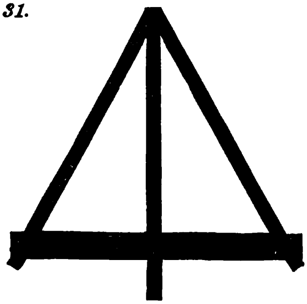
The same number of slats (five) may also be interwoven or interlaced into the following forms:

30.



a fan,

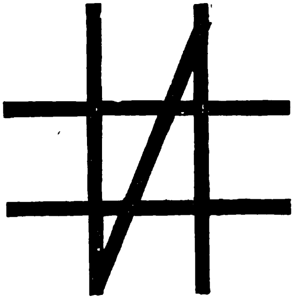
31.



an umbrella,

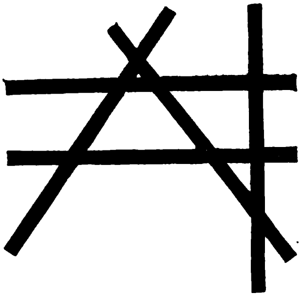
32.

a wicket,



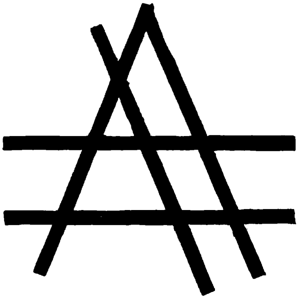
33.

a flag,

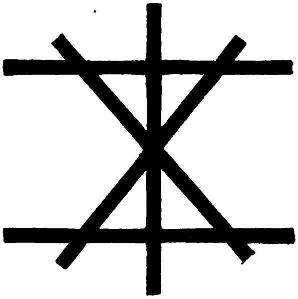


34.

the letter A,

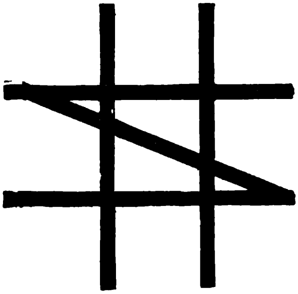


35.



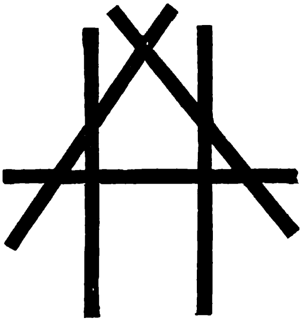
a gate—or the letter X,

36.



sign of the Dollar,

37.

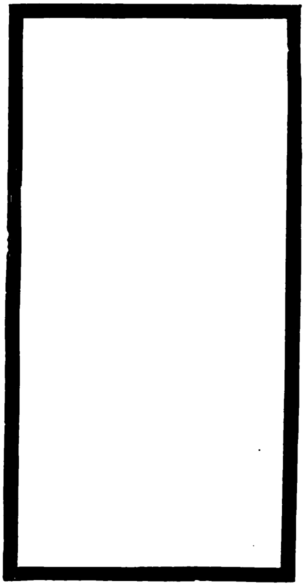


a cottage,

etc.

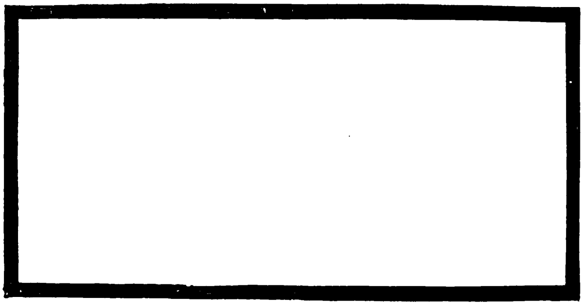
With *six* slats,

38.

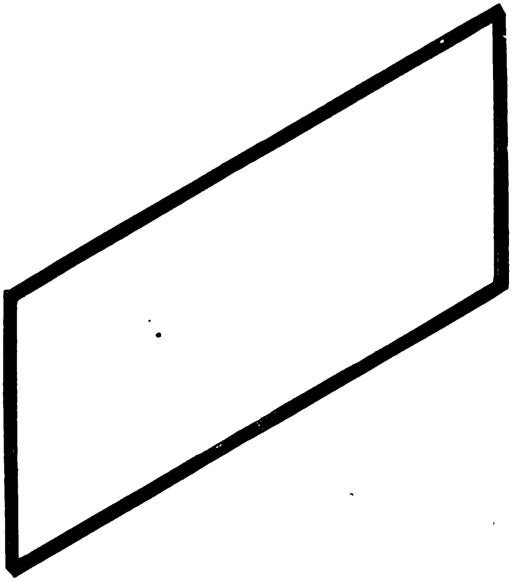


an oblong, in different positions,

39.

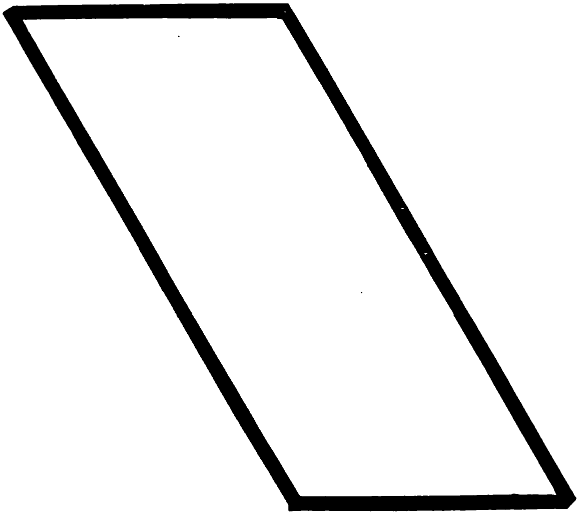


40.

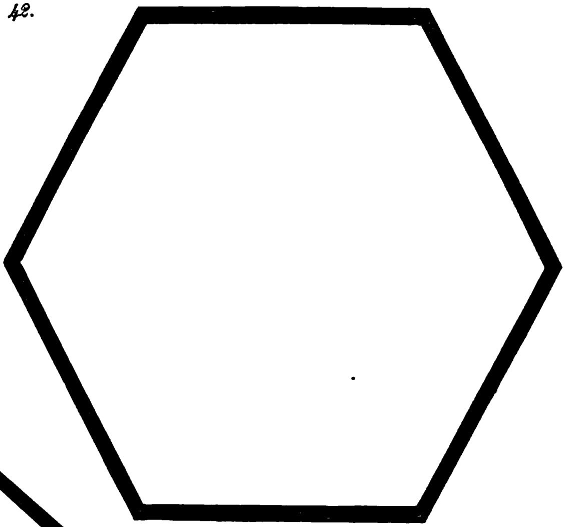


a rhomboid in different positions,

41.

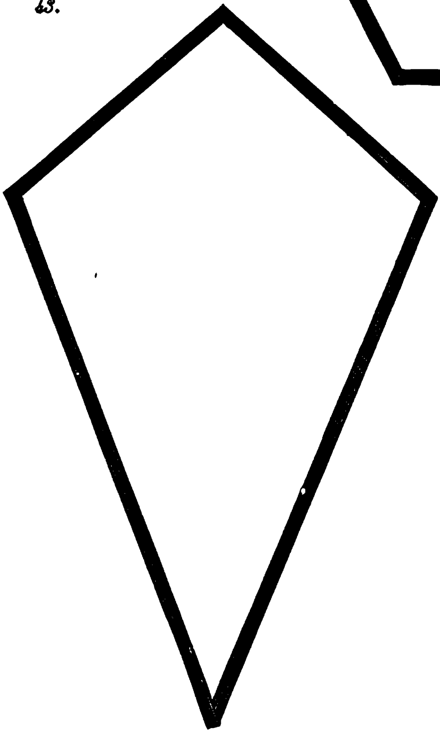


42.



a hexagon,

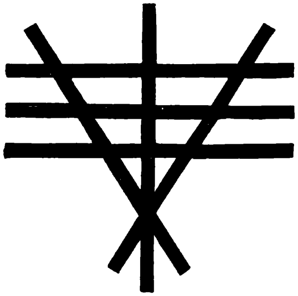
43.



and a trapezium may be laid, as well as forms of *life*.

By interweaving these six slats, the following forms may be gained:

44.



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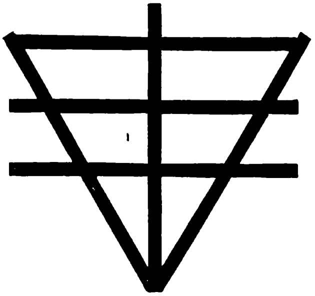
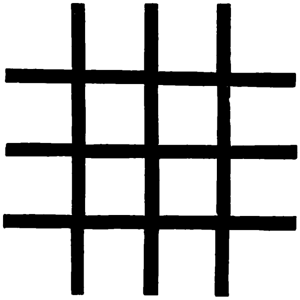


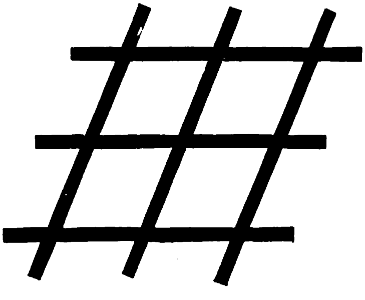
a fan,

46.



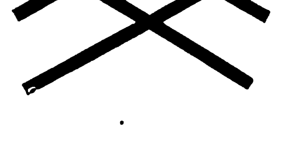
a window—four squares,

47.



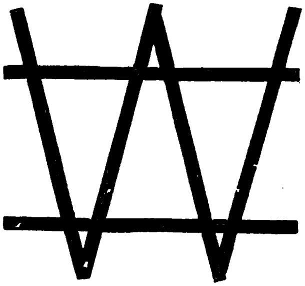
four rhombuses, representing another kind of window,

48.



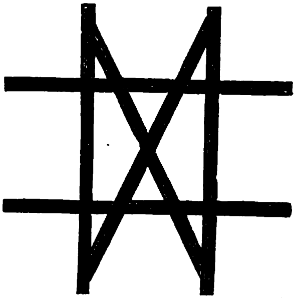
49.

the letter W,



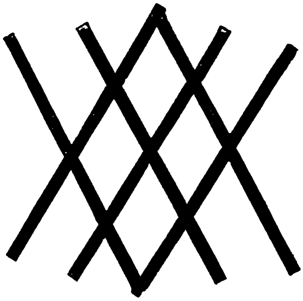
50.

a gate,



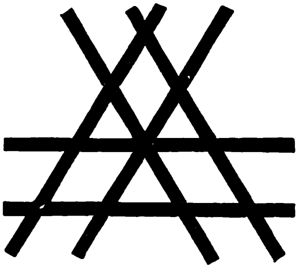
51.

shears,
lattice work,
or
part of a fence,

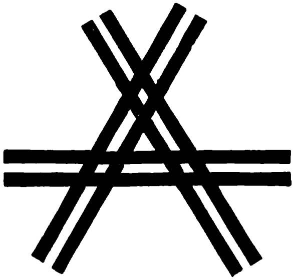


These forms made with only four, five, or six slats, will be found her frail, excepting Nos. 52 to 59.

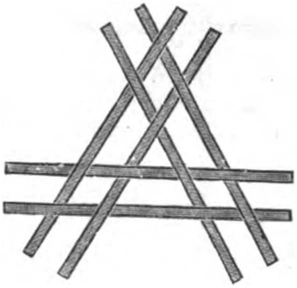
52.



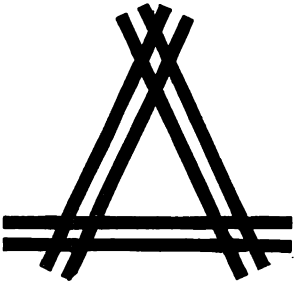
53.



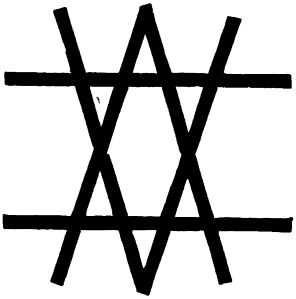
54.



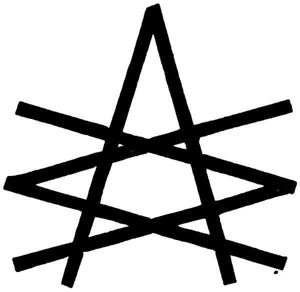
55.



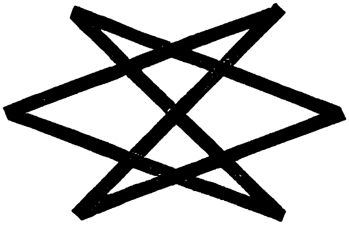
56.



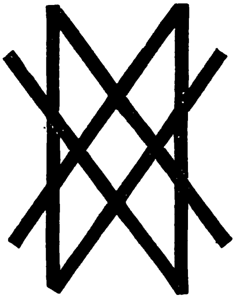
57.



58.



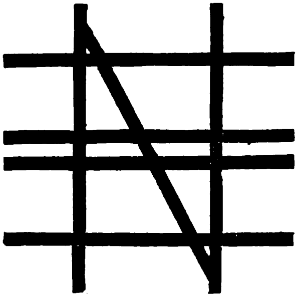
59.



With *seven* slats make:

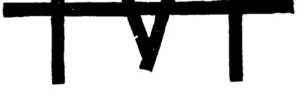
60.

the letter N,

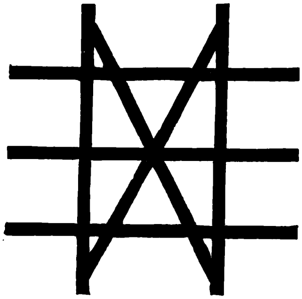


61.

the letter M,

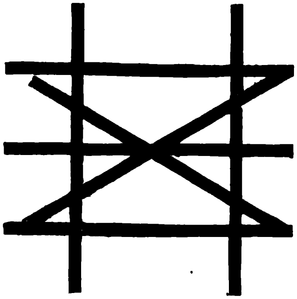


62.

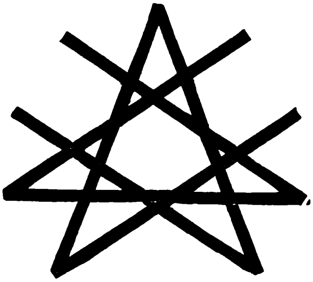


two gates,

63.

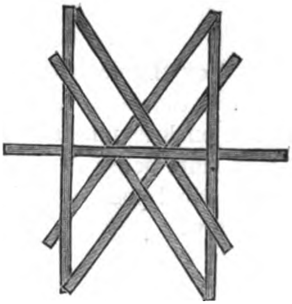


64.



stars.

65.

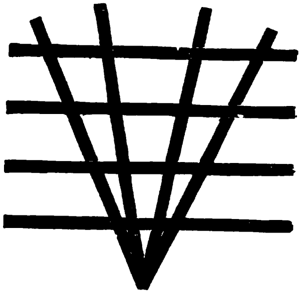


It cannot be questioned that this Gift quickens the child's perceptive powers; indeed, all its faculties must be on the alert, for many times, when the work is almost successfully accomplished, *one* slat will unexpectedly spring from its position, because it was not properly placed—and the whole structure will fall to pieces.

The next form, made of *eight* slats, serves as the *ground-form* from which a series of forms are gained by merely shifting the slats or changing them slightly.

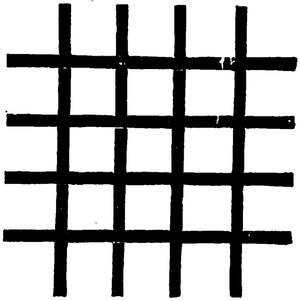
This form is made in the following manner:

66.



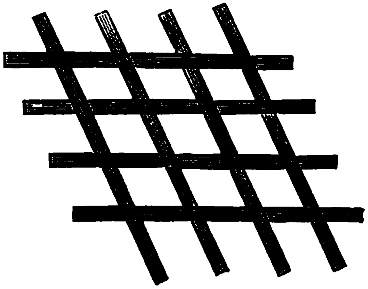
Four slats are held in the left hand "fan-like"; the *fifth* slat is woven into this frame, one up, one down, etc., and the *sixth* slat is again woven in, but in such a manner that the slats which previously were held up, are now pressed down,—and *vice versa*, just as is done in mat-weaving, until all the eight slats are employed. This form which is quite firm is called a fan, and may really be used as such.

67.



For the next form the fan is again made; the slats are then so separated as to enclose nine small square spaces, four slats being in horizontal, and four in vertical position; this form is called a window.

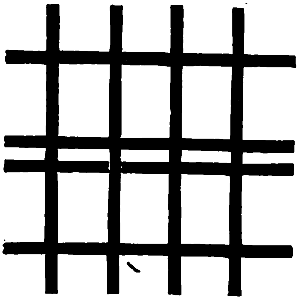
68.



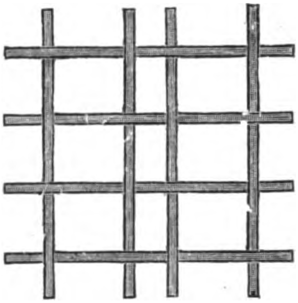
Place this window squarely before you, and push the upper right and lower left corners — or the upper left and lower right corners — gently toward each other, and the nine squares will be changed into nine rhombuses, which may be likened to another kind of window.

In another form, after having developed the square window again from the fan, move the two vertical central slats,—*or* the two horizontal central slats, to the middle;

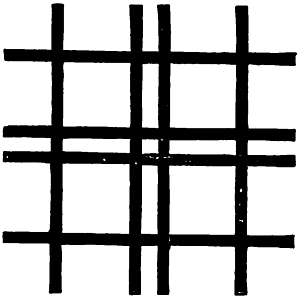
69.



70.



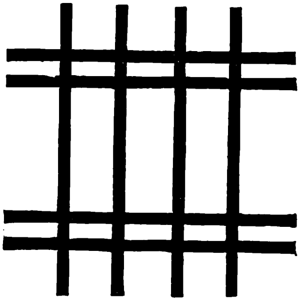
71.



or move both — the vertical and horizontal—central slats, to the middle; this form may be likened to another kind of window, or to a gate.

Move the two horizontal central slats towards the outside, and the form will represent:

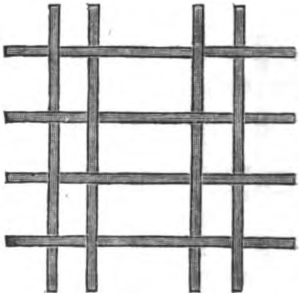
72.



a stile, a gate, or a garden trellis.

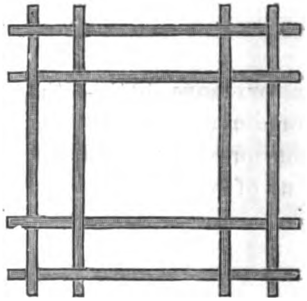
Move the two vertical central slats towards the outside, and the form may represent

73.



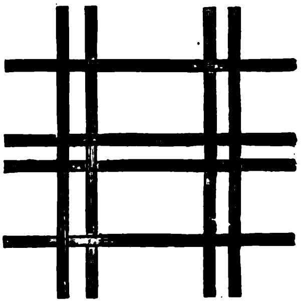
a ladder.

74.



Move the two central horizontal, *and* the two central vertical slats towards the outside, and a large window, or a picture-frame is made — consisting of one large and four small square spaces, and four oblong spaces.

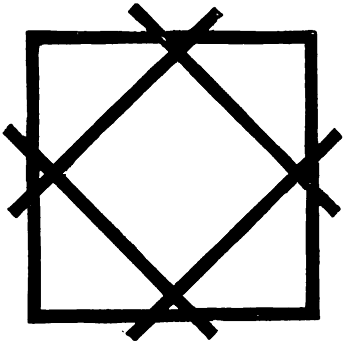
75.



Shift two of the central slats towards the middle and the two other central slats towards the outside, and the letter H is gained.

76.

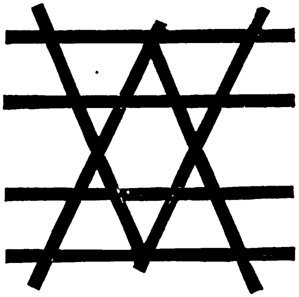
Lay a square on the table with four slats, and weave into this, diagonally a smaller square.



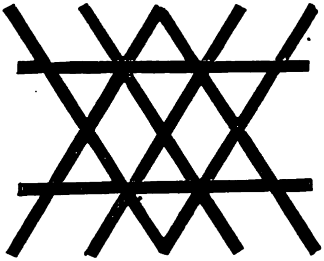
Other letters of the alphabet may also be developed from the fan-like ground-form.

The following forms, Nos. 77 to 84, are more complicated.

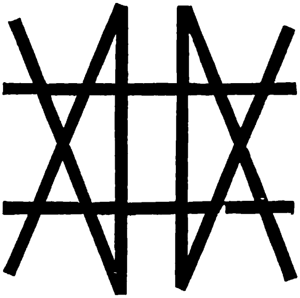
77.



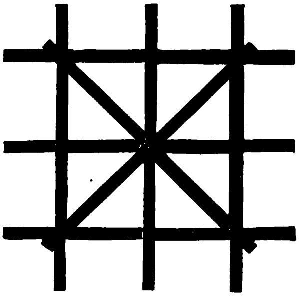
78.



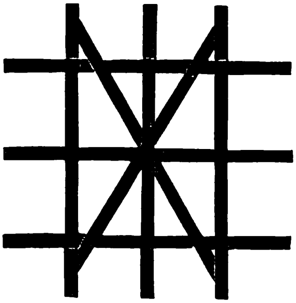
79.



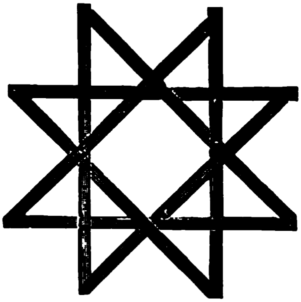
80.



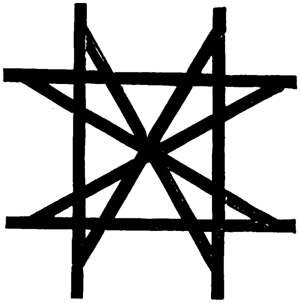
81.



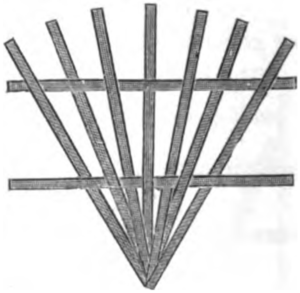
82.



83.

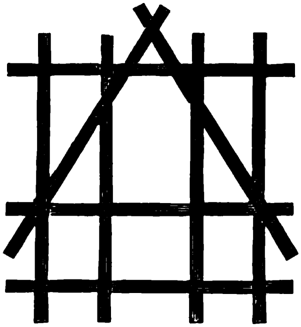


84.

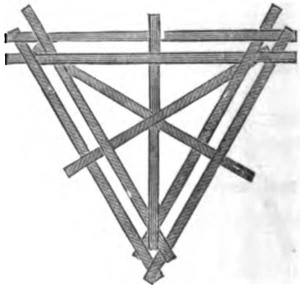


Additional slats may be given, with which forms Nos. 85 to 103, developed like the preceding ones, are gained, affording, however, greater variety.

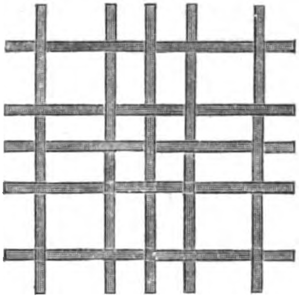
85.



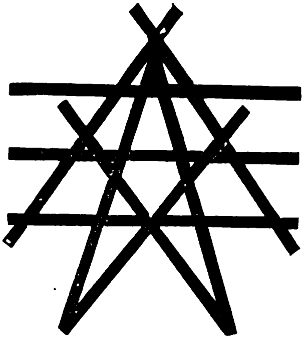
86.



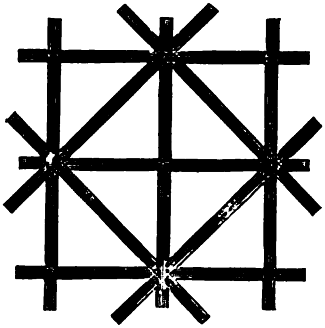
87.



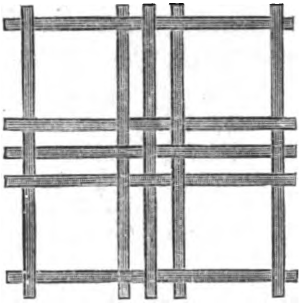
88.



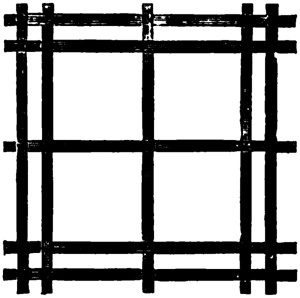
89.



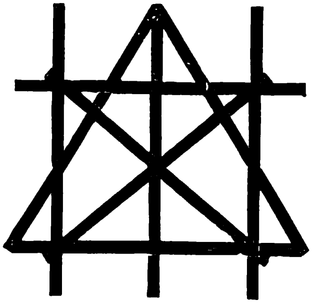
90.



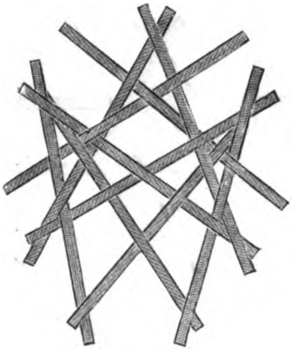
91.



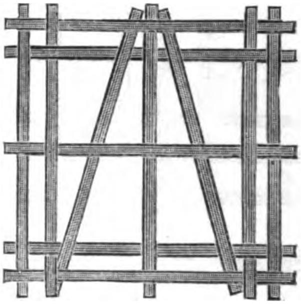
92.



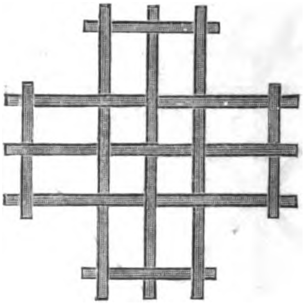
93.



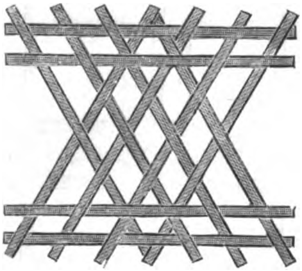
94.



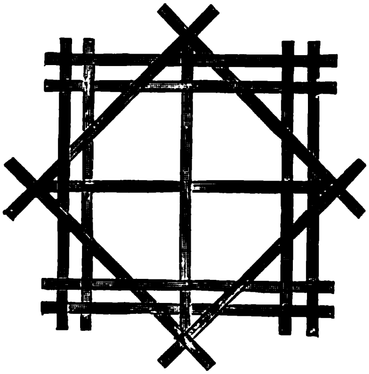
96.



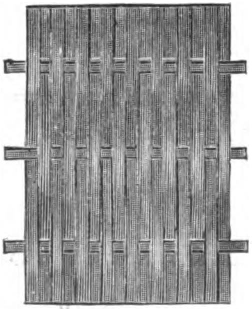
95.



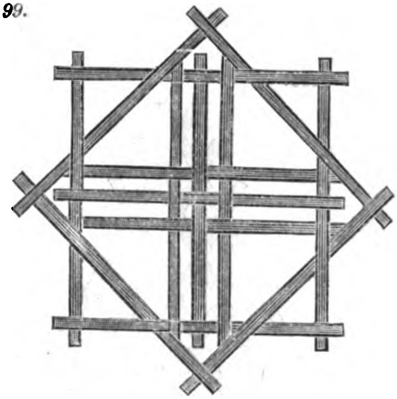
98.



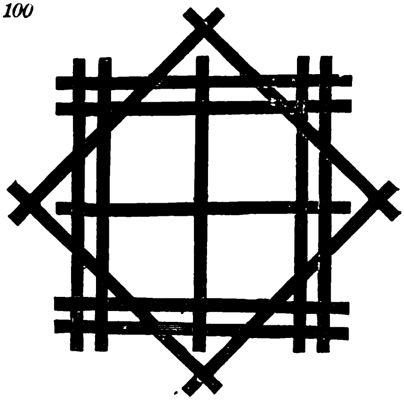
97.



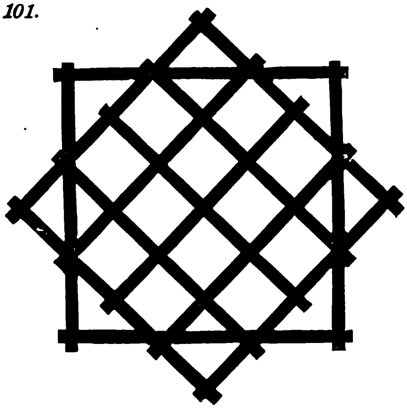
99.



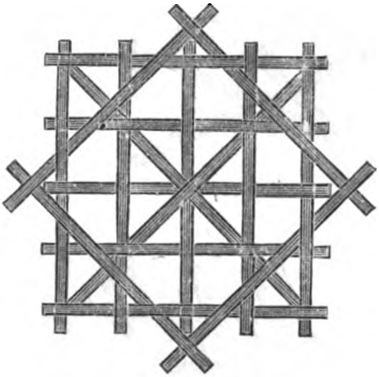
100



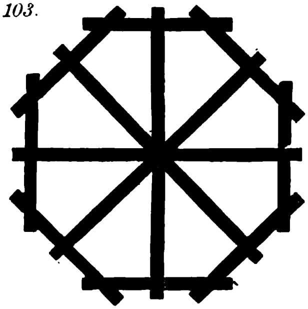
101.



102.



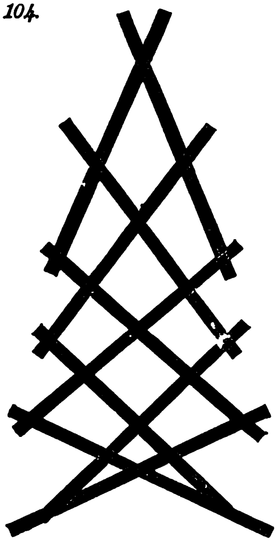
103.



The forms of this entire series may be generally likened to forms of *life*.

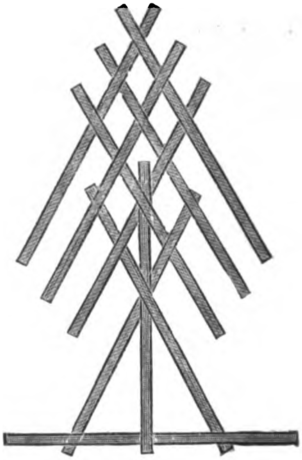
Other forms of *life*, which are voluntarily made by the child, may be, for instance:

104.



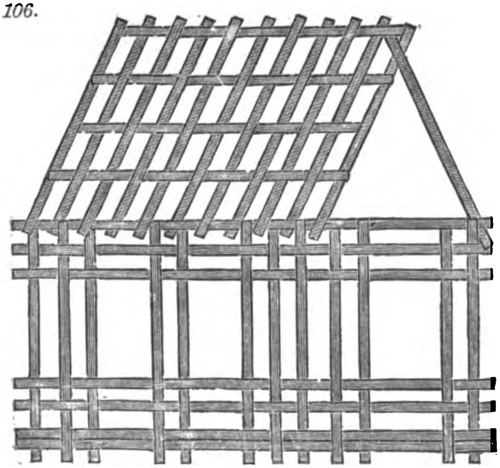
a tower,

105.



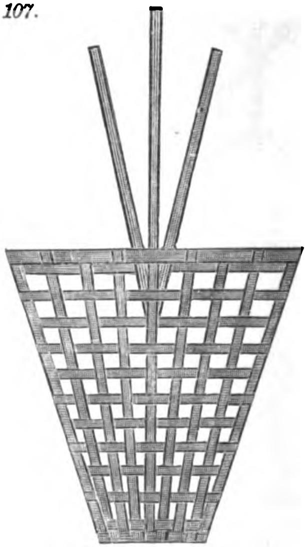
a tree,

106.



a frame-house,

107.



a flower-pot. etc.

Other forms are: a boat, a flag, chairs, crosses, bedsteads, baskets, wall-pockets, etc.

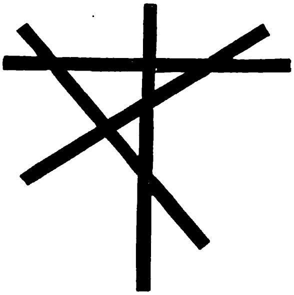
A still greater variety and beauty of the forms may be obtained by using long and short slats together.

By putting thin slats into water, as is done with reeds in basket-work, they become very pliable, and complicated and quite artistic work can be made with them.

Each figure must not only be put together, and then changed into another, but it should also be examined with reference to its several parts and properties. If a slat slips out of a place, that is, if it has not performed its duty properly—what a lesson does such an incident teach! In life, these "useless slats" are often met with; they spoil our best attempts, and ruin our best work by not fulfilling their own small, yet important, duties. Such a comparison, mentioned without moralizing, must, as a matter of course, greatly influence the moral nature of the child, and have an effect upon its whole character. The child is moved to exercise greater caution and more careful labor, and patience and endurance are inculcated, if the kindergartner seizes the right opportunity at which to strengthen the little one with assistance and advice. Great care must be taken that the child is not taxed too heavily, that its strength is not exhausted with too difficult a task, which would only awaken disgust and dislike. For the child is still selfishly inclined, in so far as it desires always to see a result—a rapid result—of its playful activity, even if this result should be but an imaginary one.

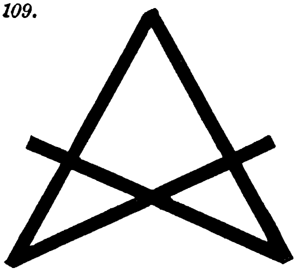
The child's powers of memory can be exercised and cultivated by a few words respecting any of the objects made. For instance: the making of the ladder would naturally be followed by a conversation on carpenters and their work.

108.

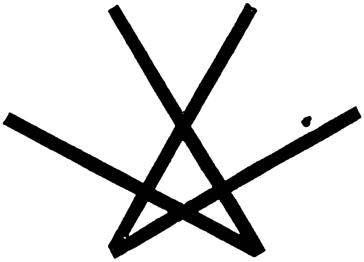


Squares, oblongs, rhombuses, etc., are again found, observed, and compared.

109.



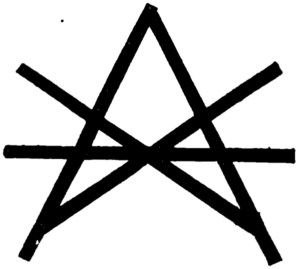
110.



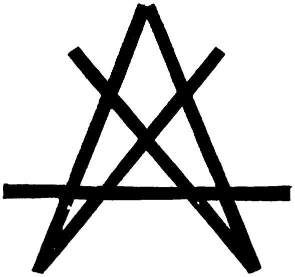
The ground-form of the second series is made of *four* slats only. It is the same form—looking like an arrow-head—which the child first learned to interlace.

By adding a *fifth* slat, this form may be made firmer.

111.



112.



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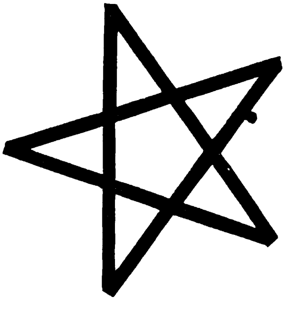
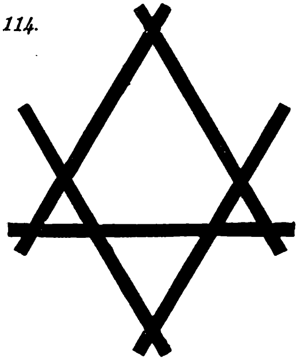


The true process, however, to be followed, is, shifting Fig. 108 until it assumes the shape of Fig. 109, and then weaving in the fifth slat under and over alternately, connecting thus the two projecting ends, and the result will be a star of five rays, enclosing in the middle the space of a pentagon, and in each ray the space of an isosceles triangle.

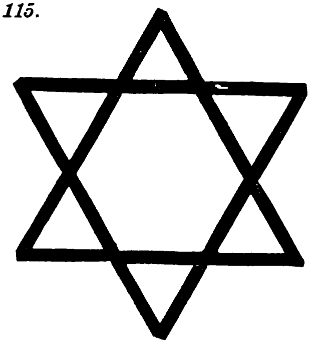
This series embraces the forms of *knowledge* in the shape of symmetrical stars.

By opening two rays of the star (Fig. 113), and joining one slat of each of the opened rays together in the middle, then adding a *sixth* slat, and connecting with it the two remaining ends, a six-rayed star is gained, enclosing in the middle the space of a hexagon, and in each of the six rays the space of an equilateral triangle.

114.



115.

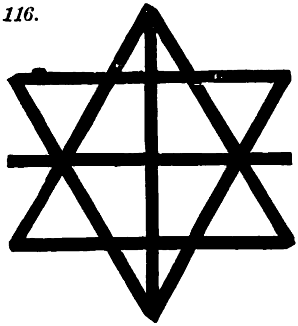


In this series each form is derived from the preceding one, by always separating the slats of two neighboring rays (four slats), moving the two middle slats of these opened rays up to one ray, and interweaving another slat in such a manner as to connect the two outer slats.

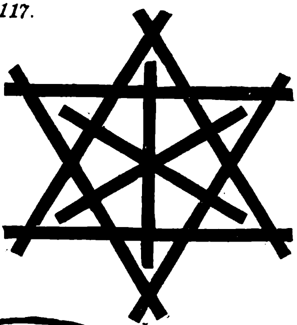
Each additional slat inserted in the same manner, produces a ray, and as many slats as a form is composed of, so many rays it has, and just so many sides has the central space.

The six-rayed star may be changed by the child with additional slats, without changing its form, as may be seen in Figs. 116 and 117. This, of course, may be done with any of the stars.

116.



117.



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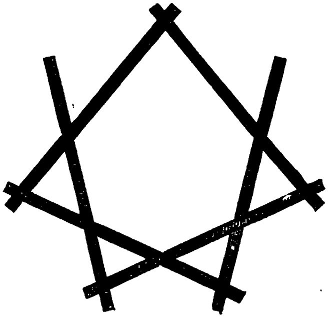
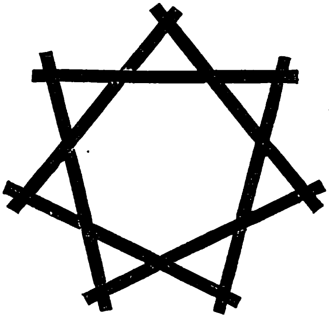
By following the regular process, in opening two rays and adding a *seventh* slat, a seven-rayed star is produced, which encloses the space of a heptagon, and which has in each of the seven rays the space of a triangle.

118.

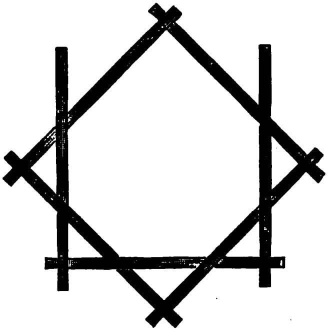


119.

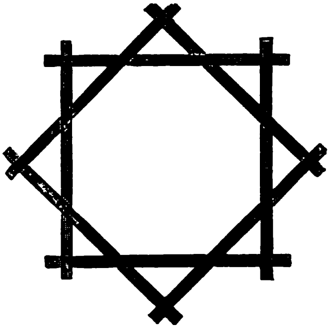


The octagonal or eight-rayed star, enclosing the space of an octagon, is the next form, as developed from the preceding star. By moving the slats of this star as close to the center as possible, the form gains still more consistency, and the same process may also be pursued with the succeeding forms. In this shape the stars may be used as rings or hoops in the game called "Graces," and will not fall to pieces.

120.

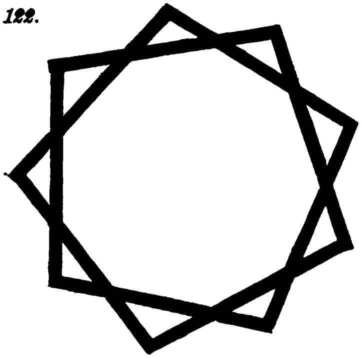


121.

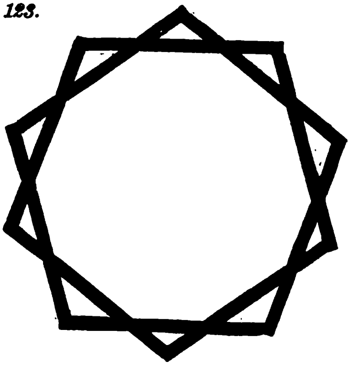


Adding to the eight-rayed star another slat, and continuing this, we gain the stars of nine, ten, eleven, twelve, etc., rays.

122.



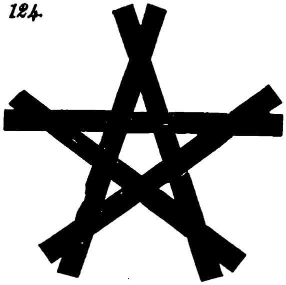
123.



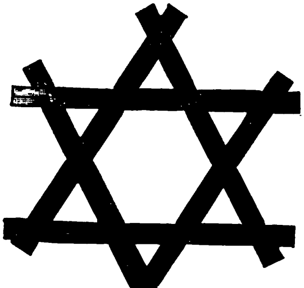
This process of enlarging the star can be pursued until the central space is a polygon of 20 or even 24 sides, but these forms will, of course, be frail, and almost circular.

A variation in these forms can be produced, and the forms thus be more clearly defined, by doubling the number of slats, that is, placing another slat exactly alongside of each of those composing the figure.

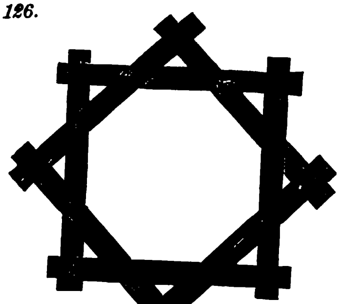
124.



125.



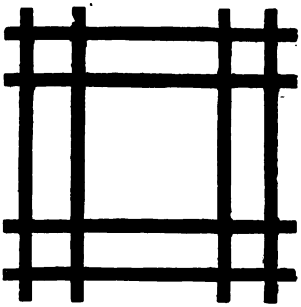
126.



Nearly all the forms in both series are purely geometrical, and the child should observe this fact, even when it calls the form a window, a ladder, a star, etc. It should notice the shape and number of the spaces, the various angles, their position, number, etc.

A capital examplification of parallel lines can also be given with the interlaced slats. For instance:

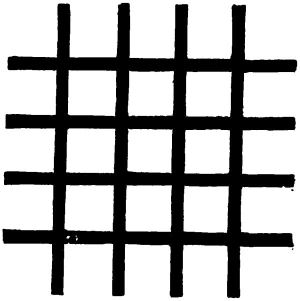
127.



on weaving eight slats into a square frame, as in Fig. 74, the various parallel lines can be pointed out; and then, by the proper motion, that is, by pushing the opposite diagonal corners towards each other, the form can be transformed into a diamond-shape, as it is called in kindergarten parlance,—when the lines will be shown to be parallel still.

A child's idea of number may be greatly improved by playing with these slats. Numeration, addition, multiplication, etc., may be practiced in a rudimental way. For instance:

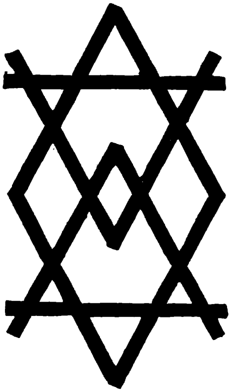
128.



in making Fig. 67, the child used *four* and *four* slats, and gained *three times three* square spaces, and *four times nine* angles in the nine squares, and just as many edges.

When far enough advanced, the child may join, by given rules, different geometrical forms, as for instance:

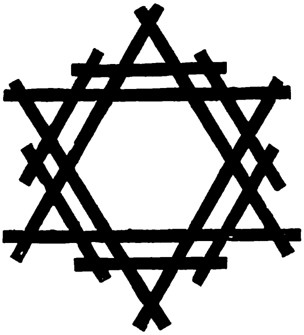
129.



two equilateral triangles and a rhombus,

or:

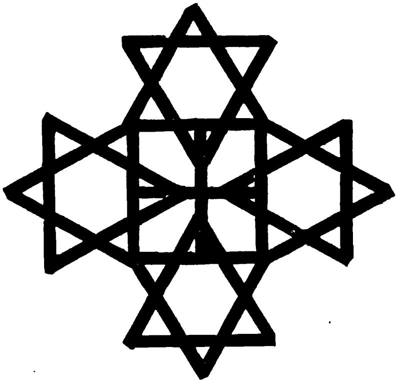
130.



two equilateral triangles and a hexagon;

or four given figures may be joined into *one* form, as for instance:

131.



four figures, each the same as No. 115, are connected—joined into one star by two additional slats,

etc.

Thus, a large field is opened for the expansion of the inventive powers as well as for the direction of the mind to clear, concise thoughts and actions,—in fact, this Gift strengthens and develops the logical faculties.

Very nimble must the fingers be to do the work well. This occupation needs much self-control in the person who practices it, whether he be child or adult.

Thus it may be seen that the forms of *knowledge*, *life*, and *beauty* all take their part again in this Gift, though blended together, as it were, into one set.

At what age may this Gift be introduced?

It may be begun with children four years old, though its more complicated exercises are valuable even to older children, in the school.

Children are very fond of this Gift, particularly if guided to work not merely according to directions, but rather to discover and invent freely and independently according to their own ideas. The ready appreciation of beautiful forms and manual dexterity are thus developed at the same time.

At each stage of the advance through Frœbel's Gifts we find, that we have only been following simple laws, few in number, and perfectly plain in their construction and meaning. It is the perfect simplicity of each part that makes the whole so clear and strong. These simple laws bring to light, for the use of the child in its earliest education, the "beginning of things." The *quantity* should always be suited to each individual capacity, and *never* should unchangeable laws be laid down for *all alike.* The growth and unfolding of the mind of a child is only seen on its sweetest side by those who, in sincerity and truth, approach it with sympathy and love.

With the growth of the child the desire to produce, unaided, some lasting result, grows and strengthens. If now the child devotes this desire for production to some aimless gratification yielding no result whatever, this desire is blighted. But, while following with equal, if not greater, pleasure, a course that fits it by and by for better and more serious work, the little one gains, with each new step, an increased strength alike of mind and body.

THE TENTH GIFT.

STICK-LAYING.

In what relation does the little stick stand to the preceding Gifts?

Heretofore we have built with blocks, making the solid forms of objects — either of *life*, *symmetry*, or *knowledge;* or we have made of these forms pictures, as represented with the tablets. The tablets were regarded, so to speak, as parts of the cube — its face; they embodied the plane. The sticks are also an outgrowth of the cube; they embody its edges, and with these the child has now to become familiar. The sticks carry us still another step in our advance from the concrete to the abstract. As has before been said, we were enabled with the tablets to form pictures of certain objects. The Connected and Interlacing Slats formed the intermediation between plane and line; they gave us the outlines of forms, but these had still some elements of the plane. The stick is the representation of the triple axis of the Ball (or Sphere), Cylinder, and Cube; or—as it were—the embodied line or edge of the surface.

To demonstrate the development of the sticks from the tablets, a square tablet might be divided so as to form the sticks; or the children might place the necessary number of sticks side by side, until the full square is formed.

The sticks offer the material for the *outlines* of objects — sketching these outlines with embodied lines.

Thus the stick, which represents the fixed embodied straight line, is the *opposite alike* of the former Gifts.

How may these sticks be described?

The sticks, as at first usually introduced into the kindergarten, have each the same length as one edge of the entire cube used in the Third and Fourth Gifts; that is equal to twice the length of the cubes of the Third Gift, or equal in length to an oblong of the Fourth Gift, *i. e.* two inches — a convenient size for the children to handle.

The sticks are usually round and smooth, and have about the thickness of a match. Squared sticks may also be used; these rest firmer on the table than do the rounded ones.

Are no larger or smaller sticks used?

When the child has become well acquainted with the two-inch sticks, others of one, three, four, and five inches may be used. They may also be colored, although no additional charm is produced.

How many sticks does each child receive for its use?

It is advisable to give each child a small bundle containing *five* or *ten* sticks, directing it to use from these, one, two, three, or all the sticks, as the case may be. In opening such a bundle, the child instinctively divides the entire *five* or *ten* sticks into *five* or *ten* units (or single ones).

In what manner should instruction proceed?

This Gift is introduced early in the kindergarten. Within its tiny compass lies such a capacity for a variety of shapes and uses, that it may well be called the "Magic Wand," as not only is its touch the "*Open Sesame!*" to a wonder-world for the little ones, but its possibilities in the development of geometrical, and other forms, are capable of worthily engrossing the maturer mind and intellect. The imagination of the little ones is a factor without limit, both for forms of life and forms of symmetry. The *very first* exercises afford practice in deftness of manipulations for the little fingers, and in the simple rules of Arithmetic for the little minds; in symmetrical proportion for the untrained eyes, and in logical discipline for the youthful brains; while in their more complex conditions they demand all the skill of trained minds, dexterous fingers, quick perceptions and, in short, a high degree of culture for all the faculties, in order to develop them. Meanwhile they are, so to speak, reciprocal, and while demanding much, give much.

Greater care is required in laying forms with the sticks, than with the tablets, as even a breath will often displace them.

When the sticks are given to the children, they will find that they are made of wood, that they have length, but no great thickness. Many questions can be asked, and many valuable facts given in a manner which the child can understand, viz: as to where the stick comes from, as to the different kinds of trees, the different parts of the tree, etc.

The children are led to point out some wooden object in the room, in the kitchen, in the yard or in the street. They should be told of the gradual formation of the tree. A bean, pea or acorn planted in a flower-pot would furnish the best illustration; exhuming it in due time, to show how life is developed from the germ, how the future plant or tree "puts first a foot downward, then stretches an arm upward to the light," until eventually the growing plant, or tree, appears.

The children will naturally express wonder that such a tender green shoot can in time grow into a plant or into the tall tree, whose branches they have seen waving against the summer sky. They should then be told of the sap which circulates from the rough roots up to the topmost tiny twig and leaf as the blood flows through their own veins, sustaining life; and how, from the sweet juices of the maple and the cane, sugar is obtained.

The children thus become acquainted with the tree's gradual growth, from its small beginnings until the time when birds will sit on its branches, and build their nests safely hidden among the thick foliage, while the little twigs nodding and whispering over their secret, but never telling it except to the breeze and sunbeams, shelter the little birds as they sing over their speckled eggs.

The children may be shown the section of a tree-trunk, and the rings or circles, which, each year, register the age of the tree.

The rough bark of the tree may be contrasted with the smooth integument of the young branches. A piece of bark may be shown to the children who are told, that it is the tree's covering or "dress"; they may be told about the oak, and what use the tanner makes of its bark. Or they may be told of the roots of the pine, and how the tar is produced from them. The method of felling the tree may also be spoken of, in this wise: "After many years of growth the wood-cutters came and cut down the beautiful tree; its branches were chopped off and used for fire-wood, and the body that had grown so straight by looking up to the sun was taken to the saw-mill where the great water-wheel works the saw; the big tree was then sawn into boards, and some of its parts cut up into these little sticks."

Thus the children are made mindful of how much labor it has given a great many people to prepare these little sticks. An account of such a nature will also tend to make the children think this simple plaything of much greater value, than if nothing was told them about it.

This will give material for many conversations about trees, and thus the "Magic Wand" will have opened to the child the pathway into an "enchanted forest"; for the truths of Nature are far more wonderful than any fairy lore, and the trees have thus come to assume a new character and interest for the child; they are now his friends. The children can also be led to recall the name or characteristic of some tree. How, for instance, the pine stands erect like a policeman or a soldier; or the weak willow hangs down its head. They will remember, that it is on trees, that the cherries grow in ripe clusters; they have seen an apple tree full of rosy-cheeked apples, etc. It helps the children to remember how good God is to let so many trees grow; for we have not only enough with which to build houses, to make chairs, tables, cars, carriages, ships, toys, etc., but there are still enough left to shade us from the hot sun when we go out walking or playing in the summer, and enough to make beautiful forests and groves all over the world, where so many little birds can make their nests and have their homes; besides these all the other trees that give us each year pears, apples, peaches, and so many good fruits.

The usefulness of the different kinds of wood should in like manner be described, and it would be well to show small specimens of some of these to the children. They should be led to observe that some trees have "leaves" and others have only "needles"; that the latter keep their verdure all the year through, while the others lose their foliage in the autumn; that some have flowers and fruit, and others none.

Of course, all such instruction must be given gradually, and must come in a natural manner, as the play of the children offers the opportunity.

The child may first take *one* stick and lay it on the table in all possible directions comparing it with real objects.

How should this be done?

The children are seated around a table, which is covered with lines forming square-inches. They are directed to place one stick on any line they please.

The kindergartner, taking up her part as "playmate" of the children, holds up a stick, saying perhaps, and under all circumstances keeping within the circle of the childish understanding: "This stick was once part of a fir-tree; there are a great many kinds of trees: oak trees, beech trees, birch trees and — can you not tell me any other kinds of trees?" One child says: "walnut trees"; another "willow trees"; another "Christmas trees", and so on, until each child has mentioned a tree. The kindergartner tells the children, that in winter such trees as the oak, the beech, the birch, etc., lose their leaves; that these leaves wither and fall to the ground and there cover up the "children of the trees"—the acorns, cones, beech nuts, etc., that moss, ivy, grass, and other things may be also found under the leaves; that some trees are green all the year round, as for instance the live oak, larches, pines, and firs; their leaves being different from those of other trees as they are long and thin and are called "needles". Their fruit is the cone; it contains the seed which the squirrels, birds and mice are fond of eating. The stems of these trees are slender and high. "Can you all stand up like these straight trees, arms uplifted, moving them to and fro, as the branches do when moved by the wind?" And the children really feel themselves to be so many trees in the forest. They learn the history of the squirrel, that frisks so merrily up and down the trees; and of the little mouse that finds a home under the roots of the tree; of the insects that are found on the tree, and the little robin that seeks shelter among the branches, when "the north wind does blow and we shall have snow". Thus conversing with the children about the little stick, the poetic nature of each one is awakened.

The children will always eagerly listen to anything relating to "Christmas trees" and their wonders. They will hear also with interest of the nursery-man's garden where he trains the young trees to grow in orderly lines. This will lead them back to the straight little sticks before them.

The kindergartner will ask the children what they think their little sticks look like. Perhaps the first child says: "a match"; the next one "a straw"; the third child "a slate pencil",—and thus may follow a flag-staff, Papa's cane, a pen-holder, a pillar, a pole, a lightning-rod, a candle, etc., until each child has compared his stick with something which he fancies it looks like. The kindergartner then continues: "Now let us see, if we can remember what each stick was called"; and all the children repeat, conjointly, what each child thought his stick looked like. This affords a very good exercise in memory.

If a child seems to be inattentive ask him to try to tell the names of all the things that have been mentioned and it will be found that each of the other children will be on the alert to see that his precious little stick is not miscalled. Of course, all this must be adapted to the ages of the children — sometimes to the frame of mind for that day, for on some days it will be found that children are not so actively inclined as on others. The kindergartner can keep up the interest by combining the names of the things represented in a little story into which they are successively introduced, as for example:

"Once upon a time a Papa and a Mamma lived in a house with their six children, three of whom were boys, and three were girls. The names of the boys were Harry, Charles and John, and the names of the little girls were Mabel, Ella and Edith." (These children can then be described and also the house; this should be done more or less minutely according to the ages of the little auditors.)

"One evening the children said that they would like to draw on their slates; and as they had all finished their supper except John, Mamma left him with the nurse, and went with the other children to the parlor. Mamma then took a *match* to light the *candle* and after it was lighted the match dropped, still burning, from her hand. Mamma was always very careful, but this was accidental. A little *straw* lay on the floor, which one of the boys had brought in from the stable; it caught fire from the burning match, and if Mamma had not seen it in time, it would have burnt a hole in the carpet."

"The children then seated themselves with their slates around a table, took their *slate-pencils* and began to draw. Harry drew the picture of a *flag-staff* with a large striped flag. Mabel drew a house with a *lightning-rod*. Charles drew a bear dancing with a large *pole*, etc. Just as the children were showing their pictures to one another, in came John riding on Papa's *cane*, and when he saw, what the other children were doing, he said he wanted a slate too. But there was no pencil for him, so he took a *pen-holder* and tried to mark with that; but it scratched the slate and spoiled it, and he was soon tired of this, for he was not quite three years old. So he took Papa's cane again, and as there were *pillars* in the room, he played, that he was riding among the trees in the Park."

Thus the kindergartner continues until she has woven into a connected story all the objects that the children have named. It can be imagined, unpretending though such a story may be, that the children will listen attentively, each child being delighted when *his* stick is made mention of,—or anxiously waiting for it to be mentioned. A child's imagination is so vivid, that it seems to see, instead of the mere *stick*, the real object which it has meant the stick to represent, and this accounts for the interest with which the children regard the stick.

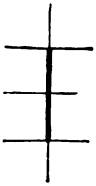
With their little stick before them, let the children observe its color; lead them to notice that it will not bend, but that, if they bear upon it, it will break, and that, when thrown into the fire, it will burn to ashes.

The *forms of knowledge* begin by directing the children to hold the stick upright with the fingers—one end pointing to the ceiling, the other down towards the floor. They thus observe more minutely the two ends and also the middle of the stick. Let the children move the little stick several times up and down, then let them hold it up as high as possible, and at last drop it upon the table, saying or singing:

One, two, three,
The little stick is free.

Next let the children move the stick from right to left; direct them to hold the stick pointing with the ends to the right and left. Now slanting; first right end up, then left end up. Next it is held in such a way that one end points towards the child and the other away from it. Now lay the stick down on the table straight before you, *up* and *down* (Fig. 1) vertically, as the children will later be taught to call it.

1.



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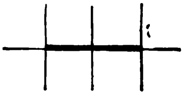


Next lay it from *right* to *left* (horizontally), and ask:

"How does the stick lie on the table?"

"One end is at the right, one at the left."

These directions the children are led to compare with those of different lines and edges in the room running the same way.

"Over how many squares on the table does the stick stretch?"

"Over two squares."

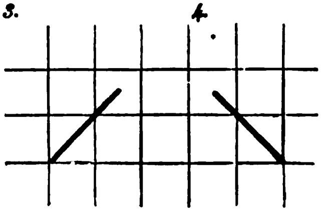
"Does it cover the whole of two squares as the bricks did?"

"No, it covers only the lines between the squares."

Now lay the stick slantwise — the right end up (Fig. 3); now slantwise, the left end up (Fig. 4).

Now lay it again straight before you up and down, and find out how many sticks there are around the table, counting the sticks of all the children.

3. 4.



Instead of becoming tired of all this minuteness, the children feel more and more interested in trying how much they can do with *one* stick, which can even be broken in *halves* and *quarters.*

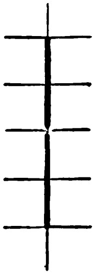
What would be the next step?

After one stick has been exhausted, a second stick is added. By "being exhausted" is not meant, that the exercises with one stick should be continued until the children are tired or exhausted; for overtaxing the brain is as fatal to the mental powers of children, as is overfeeding to the digestive powers of the body; it means only that *one thing should be thoroughly learned, before proceeding to another;* for unless each idea has secured a firm foundation, the premature introduction of a more complicated one will completely undermine the preceding ones — and the work will have to be done over again.

The children now commence exercises with *two* sticks.

The two sticks are joined at the ends, making one long vertical (Fig. 5), horizontal (Fig. 6), or slanting (Figs. 7 and 8) line.

5.



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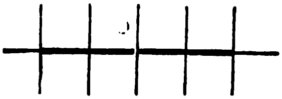
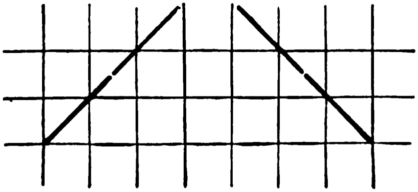
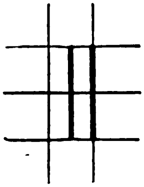


7. 8.



The children are directed to place the two sticks parallel — *at even distance,* as it is first called with the little ones — one, two, three, four, and five squares apart in the vertical (Fig. 9), horizontal (Fig. 10), or slanting (Figs. 11 and 12) direction.

9.



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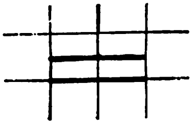

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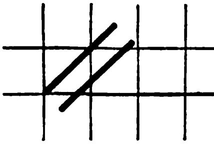

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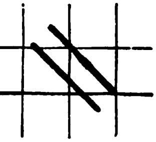
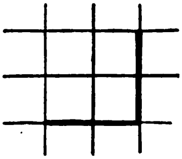


Let the children point out the parallel lines in the room or what they may have seen in the street, as, for instance, tracks for the cars.

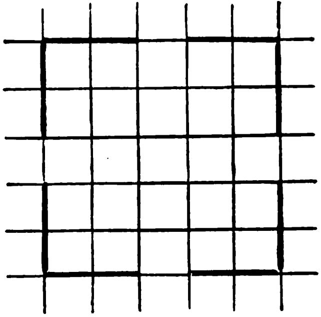
Two sticks are so joined at the ends, that one stick is in the horizontal, and the other in the vertical direction, forming thus a *right angle*.

13.



Both the outside *corner* and the inside *angle* are noticed. This corner or angle is made in the four different positions as found in the square when placed straight before you.

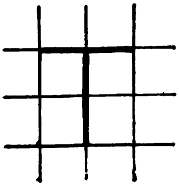
14. 15.



16. 17.

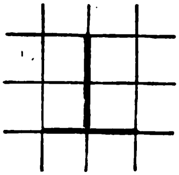
The children are led to notice, that *right angles* are always of the same size, in whatever position they may be found, and of whatever length may be the sides or arms that form it.

18.



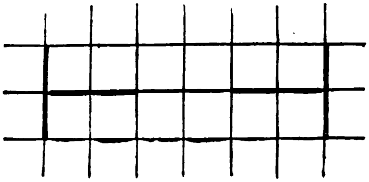
Next let the children form *two* right angles with the two sticks, by placing one horizontally, and making the upper (Fig. 18) or lower end (Fig. 19) of the other touch the middle

19



of the first, or else, by placing the horizontal stick so that one end touches the middle of the vertical stick on the *right* or on the *left* side.

20. 21.



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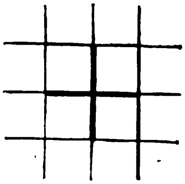
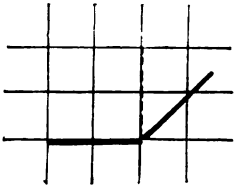


Four right angles are formed by crossing the two sticks in the middle, so that all four angles are of equal size.

There will always be some of the children who find this out by themselves. When their eyes readily recognize the right angle, let them find the *obtuse* angle, and notice that it is *larger* than the right angle.

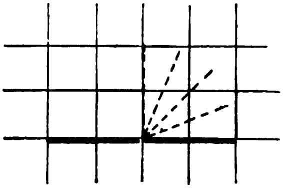
This may be carried out thus: the right angle is first made; then the vertical stick may be opened out, the angle thus becomes *larger*, and the child will call it "large" or "blunt" angle; the word "obtuse" may be omitted for the time being, for it is a difficult word for the young child, and its omission does not alter the fact.

23.



The right angle, thus gradually opened out, can form many obtuse angles, until at last the arm which has been moved to different positions, reaches a horizontal direction, and forms with the other arm a stationary, horizontal line, four inches in length.

24.



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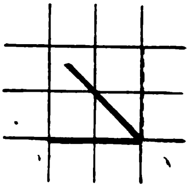
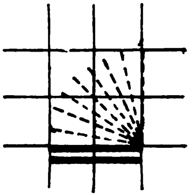


The right angle can be made *smaller* by moving, for instance, the vertical stick towards the horizontal one, forming thus an *acute* angle, which, however, the child will term for the time being "pointed" or "sharp."

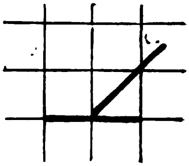
26



By doing this gradually, it will be found, that the right angle *contains* many acute angles, until at last one stick overspreads or covers the other.

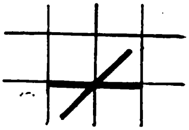
Thus the children will soon be able to classify the different angles, and will also be led to understand that a horizontal and a vertical line meeting at either end form invariably a right angle; and that a horizontal or a vertical line meeting with a slanting one, forms either an obtuse or an acute angle, the character of the angle depending upon the relative direction of the slanting towards the horizontal or the vertical line.

27.



When this is understood, the children may be asked, if they can make with two sticks one obtuse and one acute angle, which they will do by placing one stick horizontally, and the other slantwise above (or below) it, with one end touching the middle of the horizontal stick.

28.



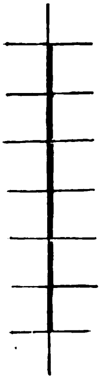
Tell the children to form with their two sticks two obtuse and two acute angles; this they will do by placing a slanting stick across a horizontal one at the middle.

The child will soon gain a quick perception of what can be done and what cannot be done. The judgment of the kindergartner must suggest her when to introduce variety.

With *three* sticks exercises similar to those with two sticks are made, viz.:

Form with the three sticks one long straight line, up and down (Fig. 29), from right to left (Fig. 30), slanting in both directions (Figs. 31 and 32).

29.



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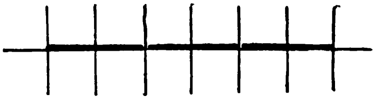

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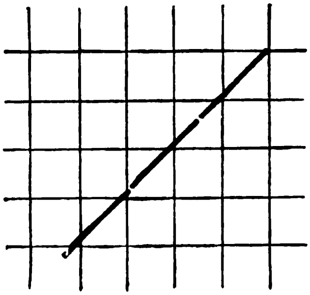

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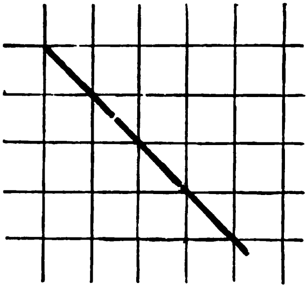
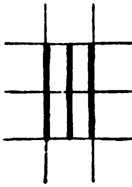


Form with the three sticks three lines at even distances (parallel), from one to five squares apart.

33.



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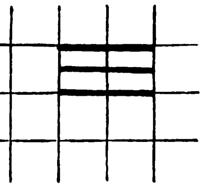

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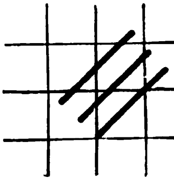

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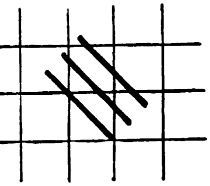
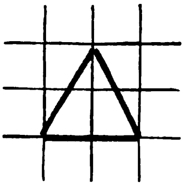


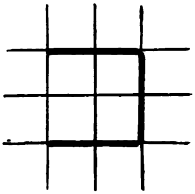
Form with the three sticks the outline of an equilateral triangle.

37.



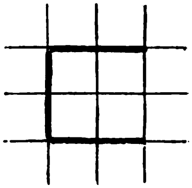
Then, with three sticks, the exercises of the angles may be represented.

38.



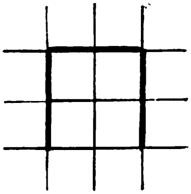
By placing, for instance, two sticks horizontally two squares apart, and connecting them on the right side with one stick laid vertically, two right angles are formed on the right side.

39.



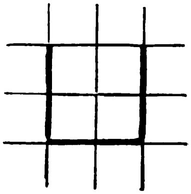
By transferring the vertical stick to the left side, two right angles are formed on the left side.

40.



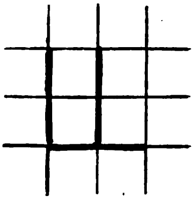
Change the lower horizontal stick to the right side in the vertical direction, and the two right angles are before (face toward) you.

41.



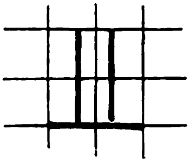
Move the horizontal stick towards you, and the two right angles face away from you.

42.



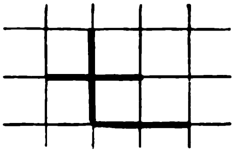
Move the right-side vertical stick a little to the left, and three right angles will appear.

43.



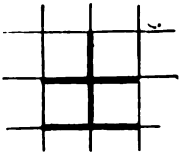
Move the left-side vertical stick a little to the right, and four right angles are obtained.

44.



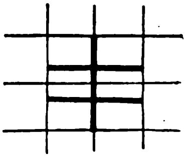
Make with two sticks a right angle, and place the third stick horizontally across the vertical stick, and five right angles are gained.

45.



Move the lower horizontal stick half its length to the left, and we have six right angles.

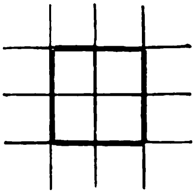
46.



Place the two horizontal sticks at even distance across the vertical stick, and we have eight rigth angles; etc.

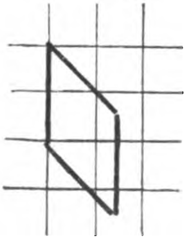
Similar exercises can be made with the obtuse and acute angles.

47.



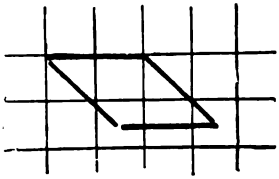
With *four* sticks we can form the quadrangle or square.

48.



By slanting *two* of its parallel sides or lines, we obtain the rhomb, often called by the children the *slanting square.*

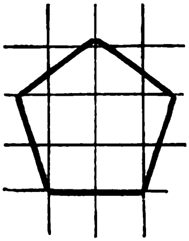
49.



Exercises with the lines and angles may again be carried out as before.

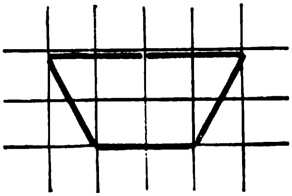
With *five* sticks we pass again over the exercises of lines and angles.

50.



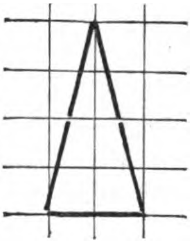
With them we form also the *pentagon*, which, as we do not use difficult geometrical terms as yet, we call the five-sided figure.

51.



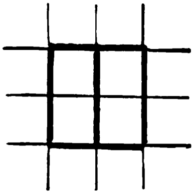
The *trapezoid* can also be formed, which is called the *uneven four-sided* figure, with only *two* sides parallel, or the boat-form.

52.



An *isosceles triangle* also can be made having all its angles acute, and its base-line half the length of the other lines.

53.



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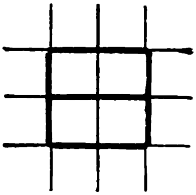
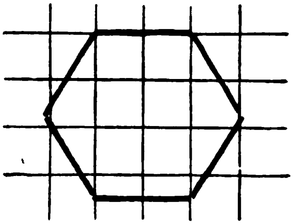


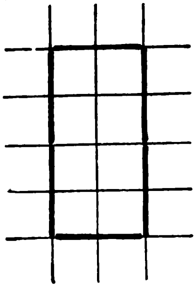
The square can be represented divided — either vertically (Fig. 53) or horizontally (Fig. 54) — into two equal oblongs.

55.



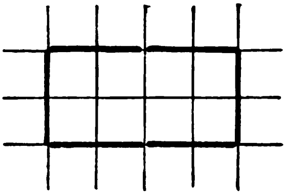
Six sticks give the *hexagon* or six-sided form;

56.



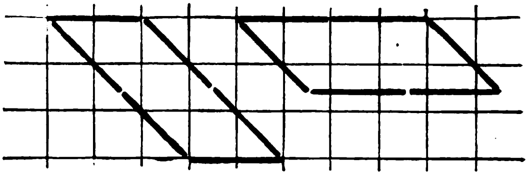
also the *oblong* in the vertical (Fig. 56) or in the horizontal direction (Fig. 75).

57.

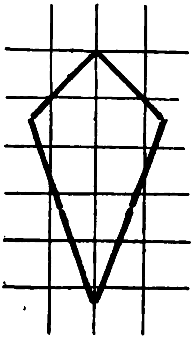


By slanting two of the parallel sides, the *rhomboid* appears (Figs. 58 and 59).

58. 59.

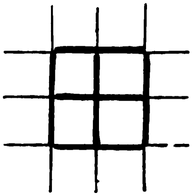


60.



The *trapezium* or *uneven four-sided form*, with *none* of its sides parallel, can also be made.

61.

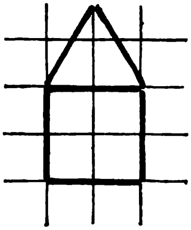


Make a square with four sticks, and place within it, one stick in the vertical, and another in the horizontal direction (Fig. 61), and you have

four small and equal squares within a large square, each of the smaller squares being one quarter, or fourth, of the large one (Fig. 61).

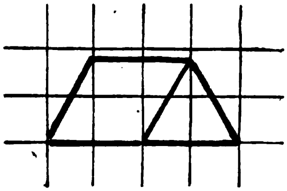
Form with the six sticks a square and an equilateral triangle touching at the sides.

62.



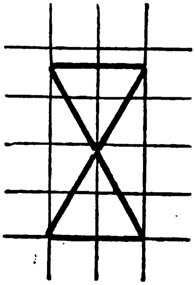
Form a rhomb and an equilateral triangle with six sticks.

63.



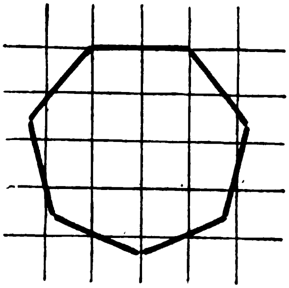
Make with six sticks two equilateral triangles touching at the corners.

64.



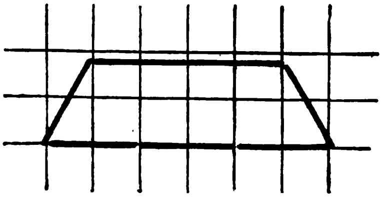
With *seven* sticks the *heptagon* or seven-sided form is made (Fig. 65);

65.

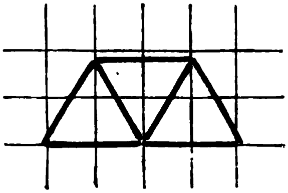


also a trapezoid (Fig. 66);

66.

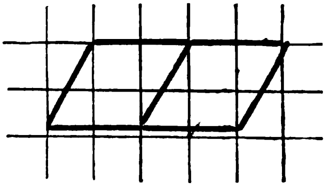


67.



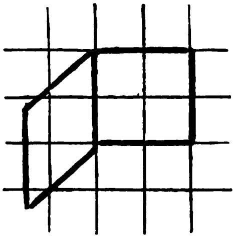
also a trapezoid with three equilateral triangles inside;

68.



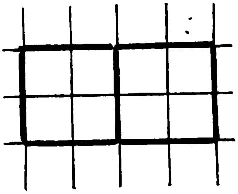
also two rhombs touching at the sides, forming a rhomboid in outline;

69.

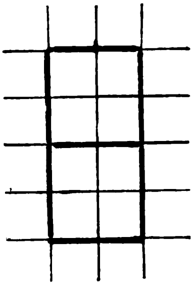


also a rhomb and a square touching at the sides;

70.

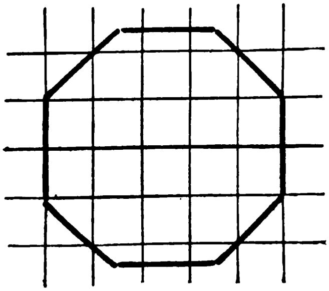


71.



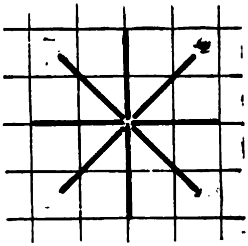
also an oblong with two equal squares inside (Figs. 70 and 71).

72.



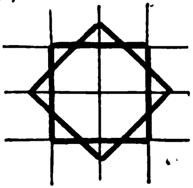
Eight sticks give the *octagon* or eight-sided form.

73.

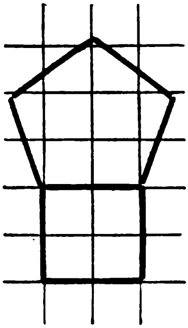


With the same number of sticks make eight equal acute angles radiating from a central point.

74.



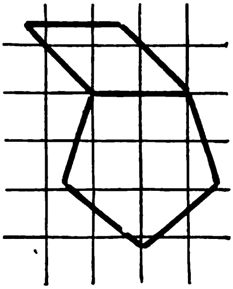
Of four sticks make a square and place it straight before you; of four other sticks make another square, and place the latter corner-wise so upon the former that in the middle the space and outline of an *octagon* appears, and around it eight equal right-angled isosceles triangles, touching its eight sides.



75.

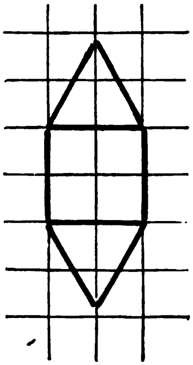
Make also with eight sticks a square and a pentagon touching at the sides (Fig. 75);

76.



also a rhomb and a pentagon touching at the sides (Fig. 76);

77.

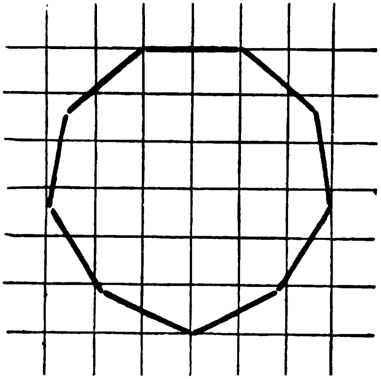


also two equilateral triangles touching the sides of a square (Fig. 77);

also a hexagon and an equilateral triangle touching at the sides; etc.

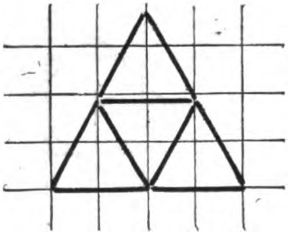
With *nine* sticks the *nonagon* or nine-sided form is made;

78.



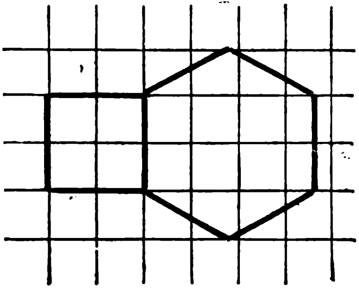
also an equilateral triangle with four equilateral triangles inside;

79

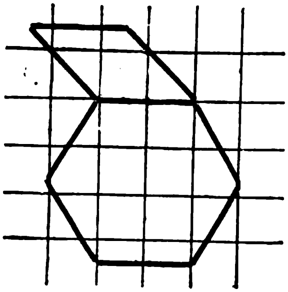


also a hexagon and a square touching at the sides;

80.



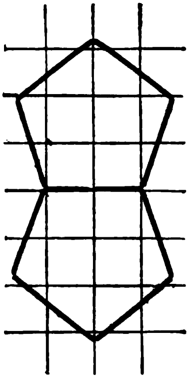
81.



also a hexagon and a rhomb touching at the sides (Fig. 81);

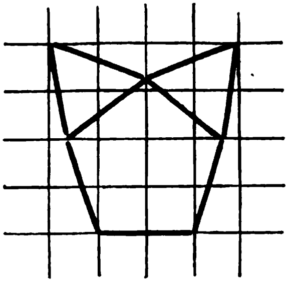
also two pentagons touching at the sides (Fig. 82);

82.



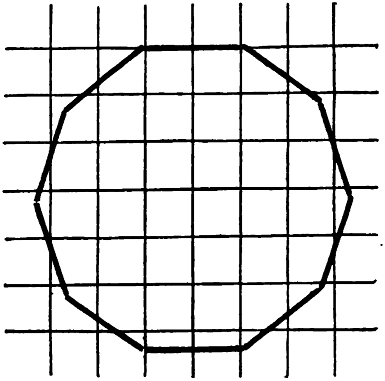
also a pentagon and two equilateral triangles touching at the sides (Fig. 83), etc.

83.

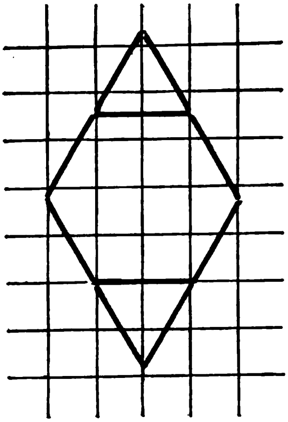


Ten sticks give the *decagon* or ten-sided form (Fig. 84);

84.



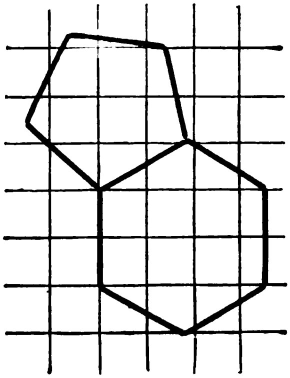
85.



also the hexagon and two equilateral triangles touching at the sides (Fig. 85);

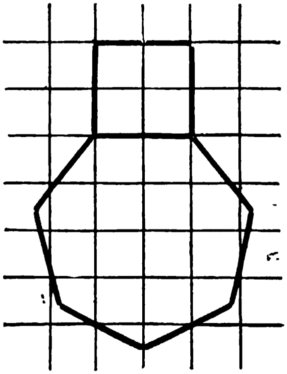
also the hexagon and the pentagon touching at the sides (Fig. 86);

86.

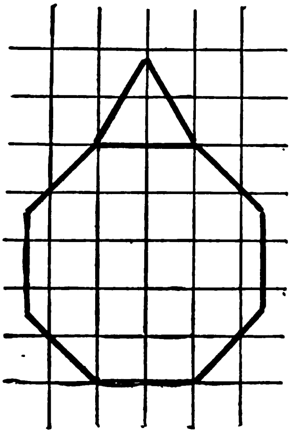


also the heptagon and the square touching at the sides (Fig. 87);

87.



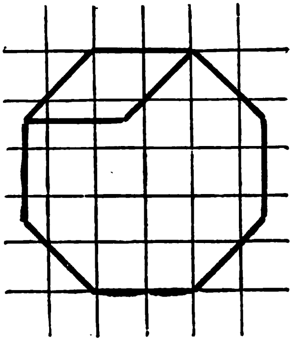
88.



also an octagon and an equilateral triangle touching at the sides (Fig. 88);

also an octagon having a rhomb inside (Fig. 89); etc.

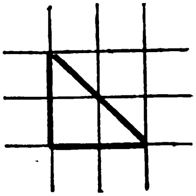
89.



With sticks of various length, of from one to five inches (half and quarter inches may also be used, when the form requires it), we can also form the *right-angled isosceles triangle.*

Direct the child to form a right angle with two sticks of the usual length (two inches) and to connect the ends with a longer stick.

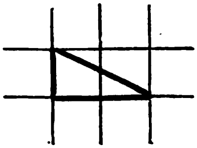
90



This triangle can, of course, be laid in various directions.

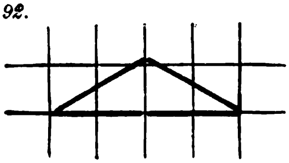
Similarly the following forms can be laid:

91.



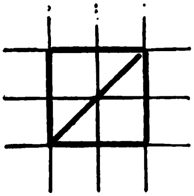
The *right-angled scalene triangle;*

92.



the *obtuse-angled triangle;* etc.

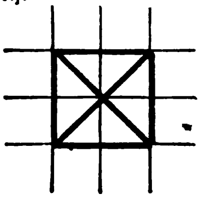
93.



The square may be divided once diagonally into two equal right-angled isosceles triangles (Fig. 93).

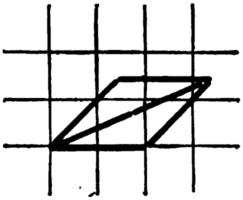
The square may be divided twice diagonally into four equal right-angled isosceles triangles (Fig. 94).

94.



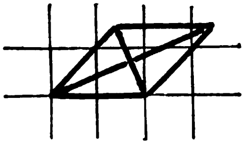
The rhomb may be divided once diagonally from the acute corners into two equal obtuse-angled triangles (Fig. 95).

95.



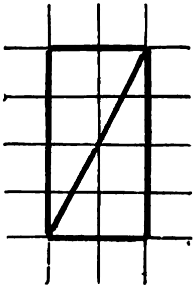
The rhomb may be divided twice diagonally into four equal right-angled scalene triangles (Fig. 96).

96.



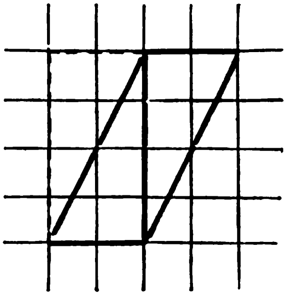
The oblong may be divided into two equal right-angled scalene triangles (Fig. 97).

97.



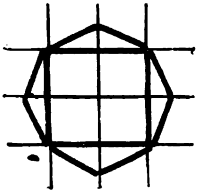
The rhomboid may be divided into two equal right-angled scalene triangles (Fig. 98).

98.



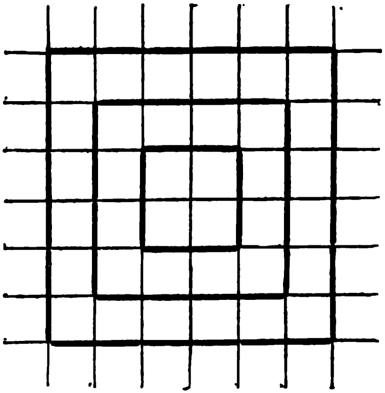
A square may touch at each of its sides with an obtuse-angled triangle; etc.

99.



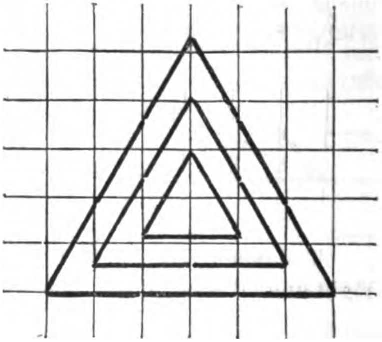
Various squares may be formed one inside of another.

100.



Or, various triangles may be placed one inside of another; etc.

101.



These forms may be copied line for line and square for square on the checkered slate. Thus in these *forms of knowledge* the problems of corners and angles are considered, and the mutual relations of these parts as well as of the whole figures are also explained. It will be a matter of both surprise and satisfaction to the children to find out for themselves, that *all* right corners or angles — whether formed of long or short lines — whether corners of a room, or of a little cube — are without exception of the same size. Of course, it will be understood, that the latter exercises are not meant for little children: and that even the preceding exercises should be *so* given that the child, so far from being directed or instructed in the way of a lesson, rather manipulates and realizes the unfolding truths in its playful experiments.

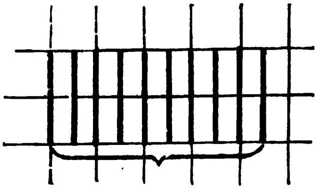
What else can be taught with these sticks?

The sticks are admirably adapted to teach number and the rudiments of the rules of arithmetic.

The child can be taught to count, to add, and to subtract by means of these little sticks.

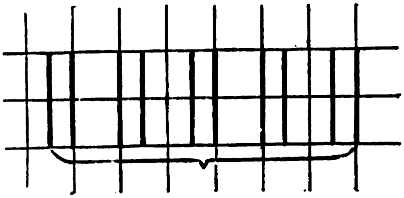
The child places the sticks before itself *vertically*, like a line of soldiers; then counts them forward and backward; it demonstrates that ten *ones* make *one* ten.

102.



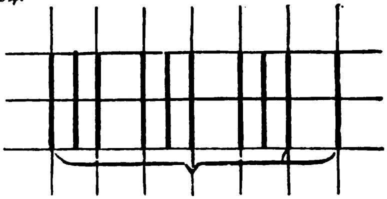
The child next finds out how many times it can place *two* sticks of the ten together, which will result in five groups, each consisting of *two* twos.

103.



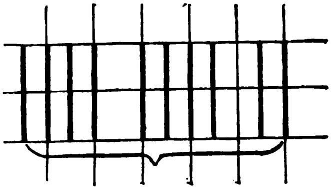
Next it finds out how many *threes* are contained in the one *ten*, which will result in *three* groups, each of three sticks, and one stick over.

104.



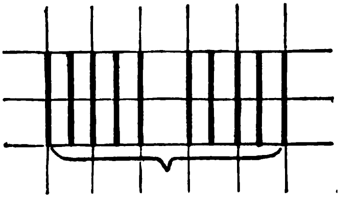
Also two *fours* and two over are found in one ten;

105.



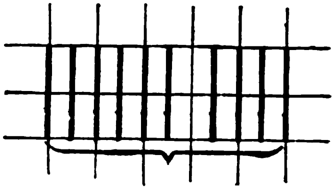
two *fives*;

106.



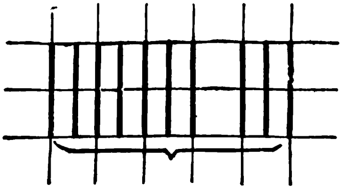
one *six* and four over (Fig. 107);

107.



one *seven* and three over (Fig. 108); etc.

108.



Addition may be carried out as follows: Place two sticks at a little distance from each other, and pointing to each stick, say:

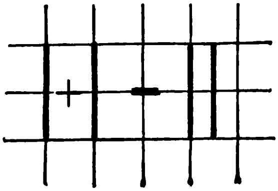
"*One* stick and *one* stick make (pushing them together) *two* sticks (Fig. 109)."

"*One* stick and *one* stick and *one* stick make *three* sticks (Fig. 110)."

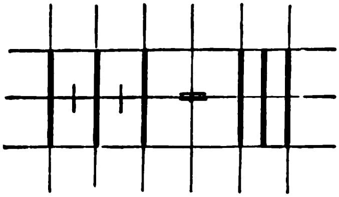
Or:

"*Two* sticks and *one* stick make three sticks (Fig. 111);"

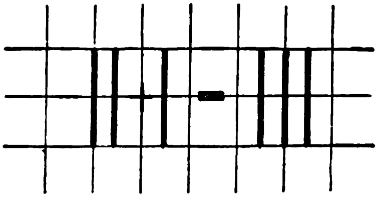
109.



110.

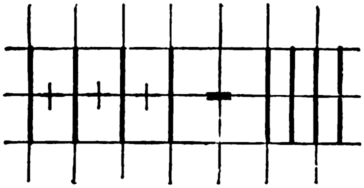


111.



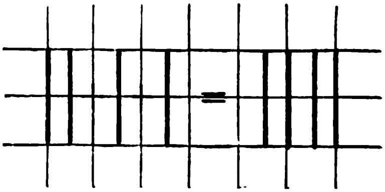
also:

112.



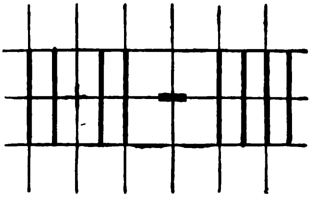
or:

113.



or:

114.



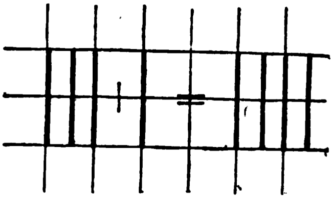
etc.

Substraction may be thus carried out:

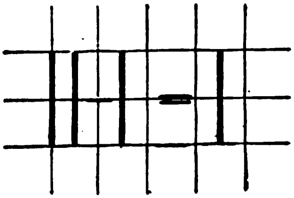
The child having *two* sticks before itself, takes *one* away, saying: "*One* stick taken from *two* sticks leaves *one* stick;"

or:

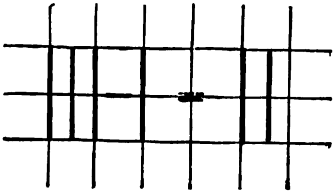
115.



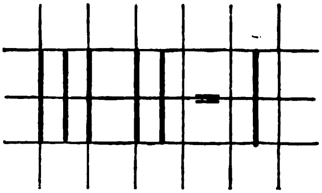
116.



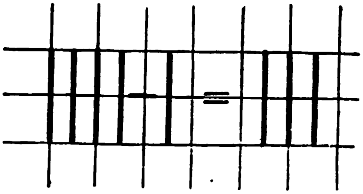
117.



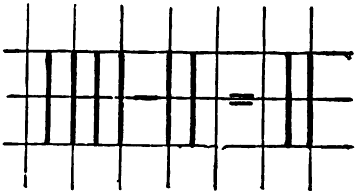
118.



119.



120.



etc.

Multiplication may be carried out in the following manner:

Each child has one stick before itself; either the kindergartner or one of the children goes around the table, pointing to each child's little stick, and saying, while the children join in counting aloud:

"*One* stick is one;"
"*two* sticks are two;"
"*three* sticks are three;"
"*four* sticks are four;" etc.

Then each child places *two* sticks before itself, and all the children again join in counting them, laying always stress on the second or even numbers:

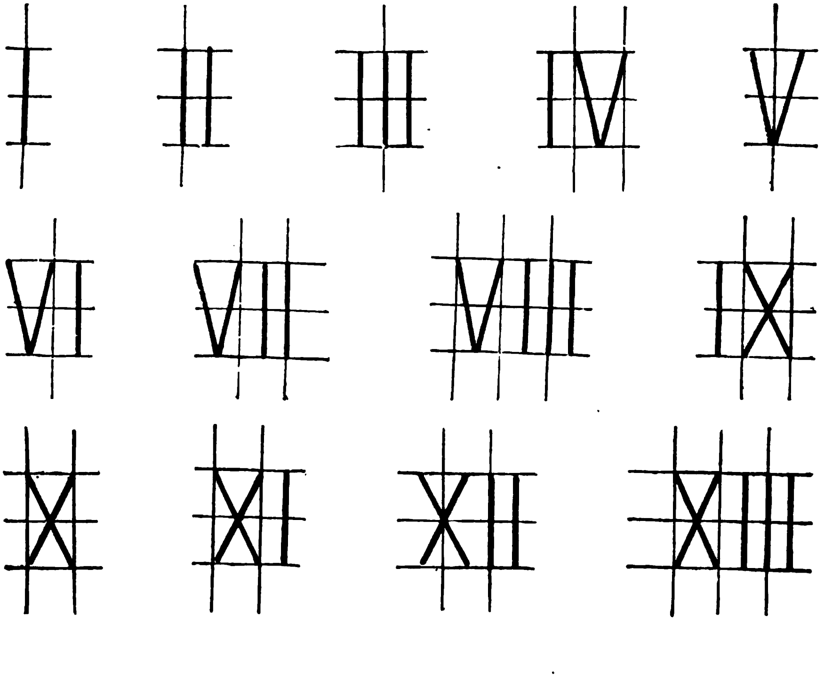
"One, *two*, three, *four*, five, *six*, seven, *eight*," etc.

After that, all together say, the kindergartner pointing to each two sticks:

"*One* two is *two*;"
"*two* twos are *four*;"
"*three* twos are *six*;"
"*four* twos are *eight*;"
"*five* twos are *ten*;"
"*six* twos are *twelve*;" etc.

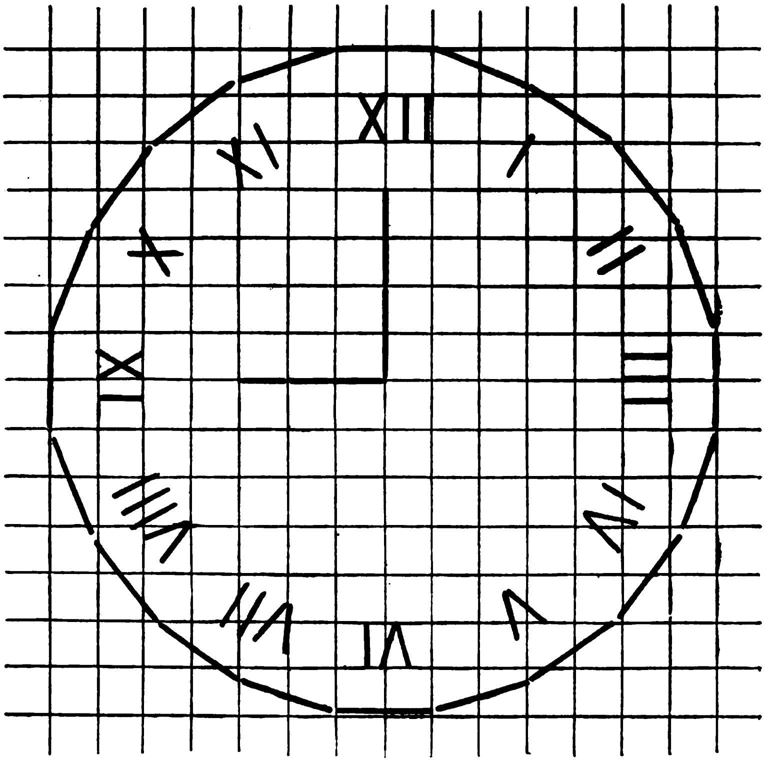
The Roman figures may also be made by the children:

121.



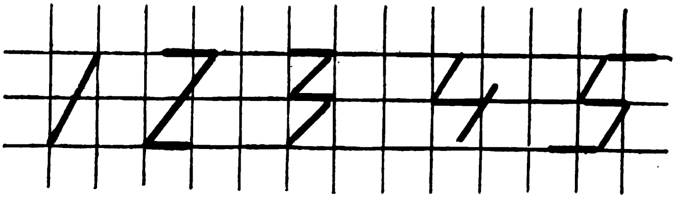
The face of the clock may be laid, and by moving the hands round, the children can playfully learn to tell the time.

122.

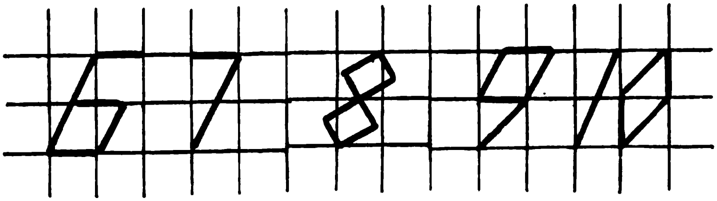


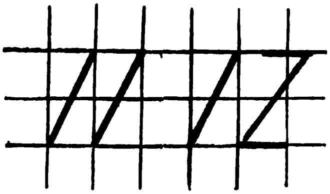
The Arabian figures may be made:

123.



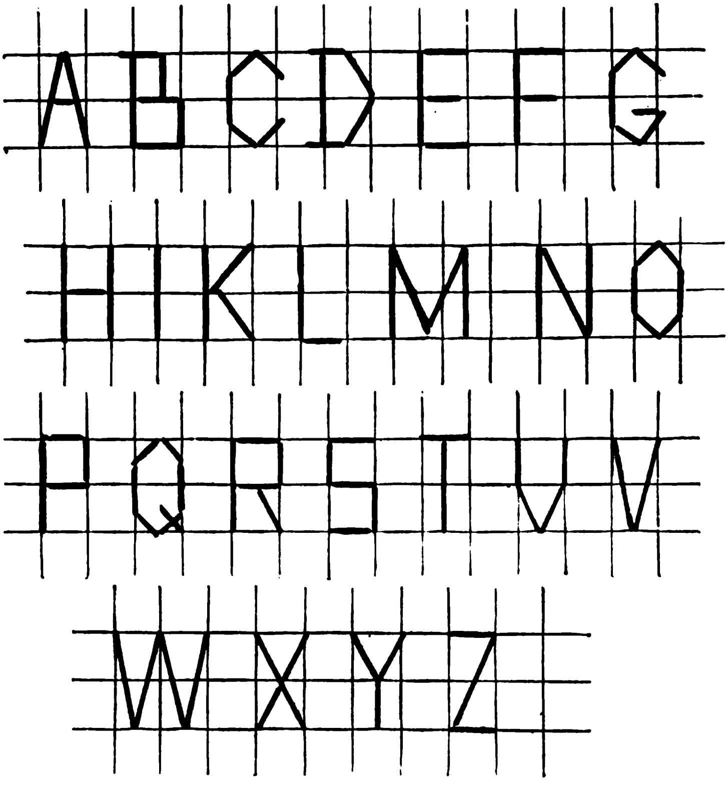
123.



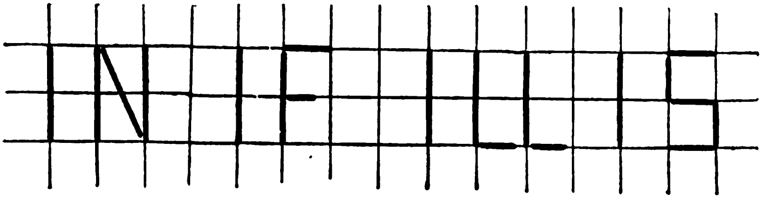


The letters of the alphabet can also be laid, and may be combined to form small words, if the child is sufficiently advanced to do so out of its own accord (Figs. 124—132).

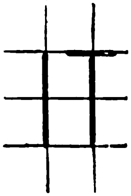
124.



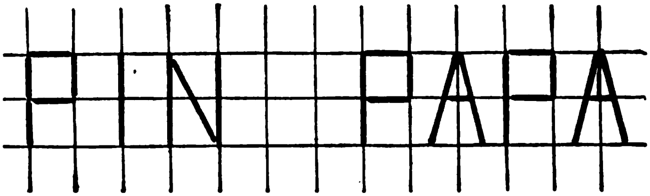
125. 126. 127. 128.



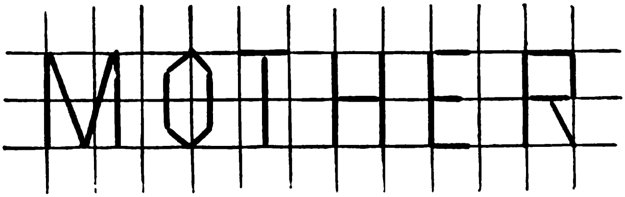
129.



130. 131.



132.



Whole sentences may be thus laid, although this is not the normal use of the sticks.

Stick-laying is one of the simplest and best means of development for the little ones. It is a kind of preliminary drawing with given lines — with the *embodied* line. Stick-laying and drawing alike rest on the same basis; the one is complementary to the other.

Stick-laying stands in relation to the *lower grades of drawing*, as *practice* to *theory*.

Amos Comenius (1592—1671) says:

> "Children should be allowed to imitate pictures, if they like to do so. And should they not like it, then they should be *taught* to like it — for the following reasons:
>
> 1) That they may accustom themselves properly to reflect on things;
>
> 2) that they may learn to compare things;
>
> 3) that they may practice the hand to gain *dexterity*, which is useful for many things."

Stick-laying leads intuitively, more even than drawing, to the recognition of the simplest geometrical forms. By repeated and manifold representations the child acquires a clear idea of what is a square, a triangle, an angle, a vertical, or horizontal line, etc.

Can forms of life be made with the sticks?

It has been shown already how one little staff can represent some object or other.

All the exercises in the stick-laying occupation are based on *number;* and the process should be the same as in all the other kindergarten occupations, from the easy to the more complex. So with two, three, four, and more sticks forms of life can be represented. Again, little stories may be told, or little explanations in regard to the form represented may be given, and the child as well should be led to make its own remarks. The number and variety of the sticks used, will determine whether this or that outline figure comes nearer to the real shape of the object to be represented.

The child, whilst playing with a limited number of sticks, should always lay them on, or parallel with, the lines marked on the table, until eye and hand have been sufficiently practiced; even in the more elaborate forms the net-work of square lines will always prove a guide, and will bring about better results than if no such aid were given.

Any form may be made; but especially architectural and ornamental forms can be represented in great variety — it being always understood that the stick represents the outline of forms only.

Architectural forms can be represented as "side views" or "front views." Perspective representations are excluded from the kindergarten; neither should the single stick, for instance, represent a pillar; for every-where it should indicate the outline only. In making an architectural form, lay it at first in outline; the inner arrangement, as, for instance, the border of the roof, the outlines of the doors and the windows, etc., should be made afterwards.

Children having acquired some knowledge and dexterity in handling this Gift, may break their sticks, or bend them, in order to represent the curve of an arch or bow-window. These forms of life are very interesting, and they may also be copied on the slate or blackboard in a very faithful manner. By laying with the sticks *forms of life,* the child acquires the habit of carefully observing what surrounds it and also many important facts of natural history; it cultivates likewise in the child's mind, that voluntary and unaffected attention which will help later on to make the young students' reading lessons a pleasant, instead of a wearisome, task.

These "outline pictures" of things which the child sees around it — or *forms of life*, as they are termed in the kindergarten, the child at first carries out under the direction of the kindergartner, and afterwards *alone*, according to its own fancy, thus freely developing its inventive faculties.

How are the exercises of forms of life carried out with two, three, four, and more sticks?

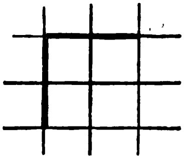
Each child receives two sticks, and arranges them before it in an orderly manner; then the children may count the sticks, as they see them, by twos around the table.

Each child may next arrange its two sticks, either on the right or left upper corner, as a right angle, which may be called a "flag."

This opens at once a large field for remarks, conversation, and play, for instance:

"A flag is a large piece of woollen or other woven material fastened to a flag-pole. — The flag moves in the wind, and its loose end is blown in the direction opposite to that from which the wind comes. —There are various kinds of flags.— A regiment of soldiers always has one or more flags. — Children love to play with flags.— The houses are, on particular occasions, decorated with flags. — Each country has its own particular flag. — We can tell what country a ship belongs to by the flag she bears or flies. — Who can tell, what the American flag looks like?"

133.



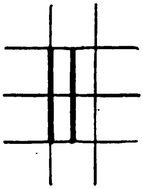
"There are flags made of strips of metal, called vanes or weather-flags, which are fastened on the top of church-spires, or of other high buildings, and which show us which way the wind blows."

Here the "Hand and arm game" of "The Weather-cock" may be introduced:

Like the weather-cock I'm going
While the gusts of wind are blowing;
I can turn my wrist and hand,
As the best vane in the land.

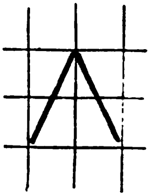
Or let the children arrange their two sticks as they fancy; one child will perhaps call them:

134.

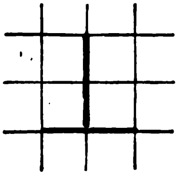


two pencils (Fig. 134);
another: a tent (Fig. 135);
another: a candle-stick (Fig. 136);
another: a pick-axe (Fig. 137);
another: a bird flying (Fig. 138);
etc.

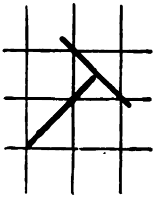
135.



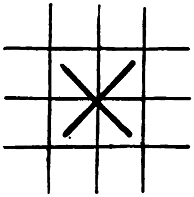
136.



137.



138.



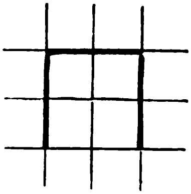
The children will take great delight in repeating all the names that have been given to the different forms — quite unconscious of the benefit that their memory gains by the exercise, not to speak of the amount of general knowledge they acquire by talking and learning some thing of each thing they represent.

With *three* sticks the child again commences by arranging them in an orderly manner on the lines of the table at even distances, and then counting all the sticks in groups, always laying stress on the *third* number, viz.:

One, two, *three;*
four, five, *six;*
seven, eight, *nine;* etc.

Then direct the child to form with the three sticks *two* right angles at the upper left and right sides, which may represent a kitchen-table.

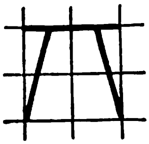
139.



Various questions may be asked, for instance:

"What are tables made of? — Who makes the tables? — Are all tables alike? — Name different kinds of tables. — Who can make another table?"

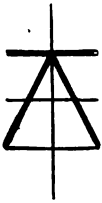
140.



This latter request will speedily be carried out by making, perhaps,

a better specimen of a kitchen table (Fig. 140);
a little parlor-table (Fig. 141);
a little work-table (Fig. 142);
etc.

141.



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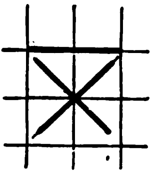
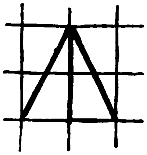
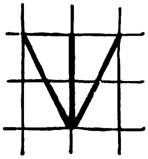


The children then carry out their own ideas, and soon the following forms may be seen:

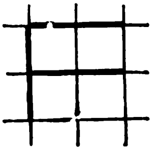


143.



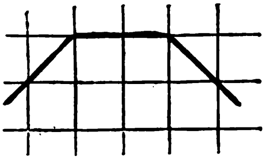
an open fan (Fig. 143);

144.



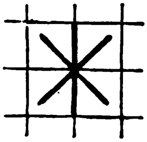
a flag (Fig. 144);

145.



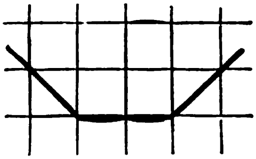
a French (Mansard) roof (Fig. 145);

146.



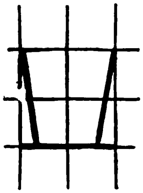
a six-rayed star (Fig. 146);

147.



a boat (Fig. 147);

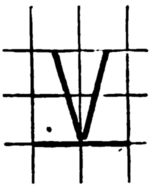
148.



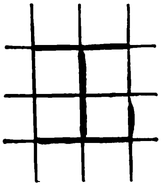
a flower-pot (Fig. 148);

a vase (Fig. 149);

149.

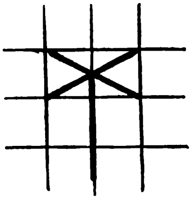


150.



the letter I (Fig. 150);

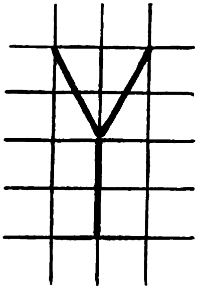
151.



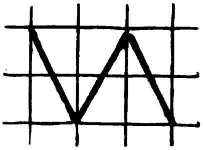
a wind-mill (Fig. 151);

the letter Y (Fig. 152);
a zig-zag (Fig. 153);
a hammer (Fig. 154);
an umbrella (Fig. 155);
a flag (Fig. 156);
a pitch-fork (Fig. 157);
a cross (Fig. 158);
steps (Fig. 159);
a flail (Fig. 160); etc.

152.



153.



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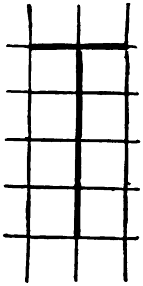

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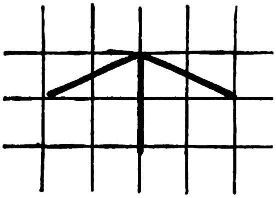
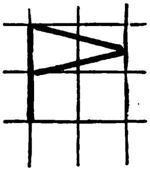
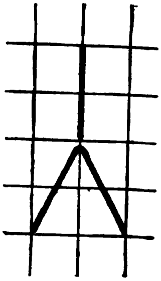


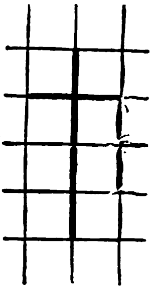
156.



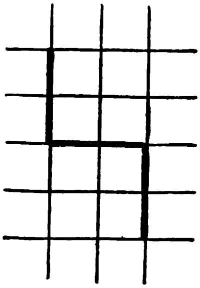
157.



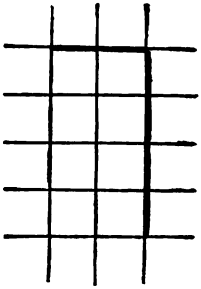
158.



159.



160.

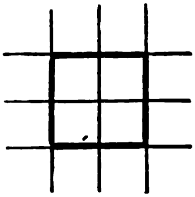


With *four* sticks the children may commence by counting them as before, laying stress on the *fourth* number, viz.:

One, two, three, *four;*
five, six, seven, *eight;*
nine, ten, eleven, *twelve;* etc.

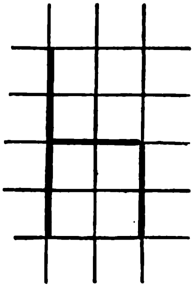
Then the regular exercises of the *forms of life* may begin, by laying, for instance:

161.



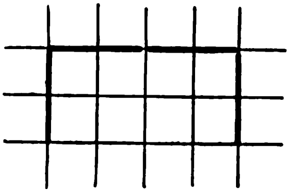
a window (Fig. 161);

162.



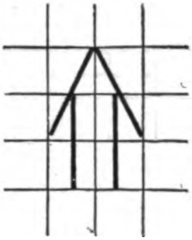
a chair (Fig. 162);

163.



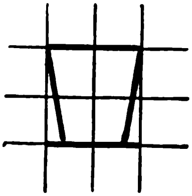
a bench (Fig. 163);

164.



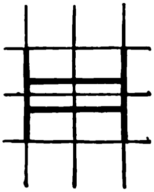
a kennel (Fig. 164);

165.



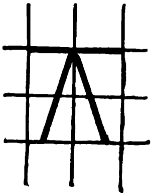
a flower-pot (Fig. 165);

166.



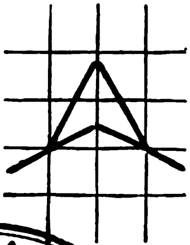
a bedstead (Fig. 166);

167.



a table (Fig. 167);

168.



a Tyrolese (or Alpine) hat (Fig. 168);

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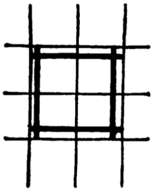
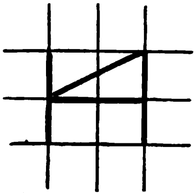
169.



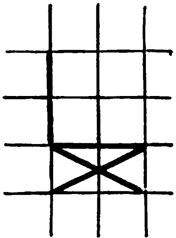
a picture-frame (Fig. 169);

170.

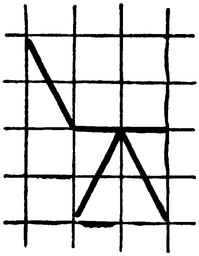


a crib (Fig. 170);

171.



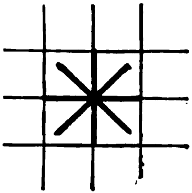
172.



a chair (Fig. 171);

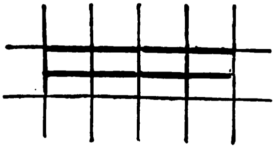
another chair (Fig. 172);

173.



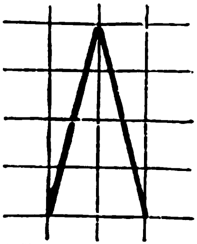
a star (Fig. 173);

174.



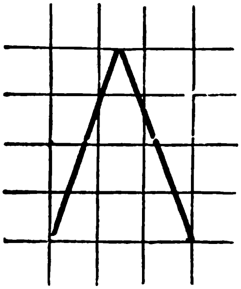
railroad-tracks (Fig. 174);

175.



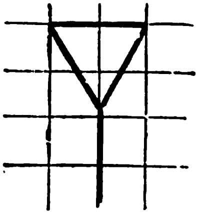
a sugar-loaf (Fig. 175);

176.



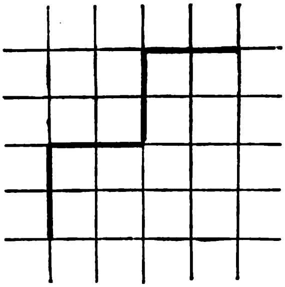
a conic mountain (Fig. 176);

177.



a funnel (Fig. 177);

178.



steps (Fig. 178);

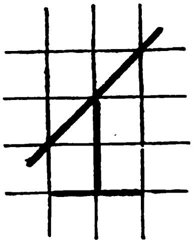
a well-sweep (Fig. 179);

a railing (Fig. 180);

a ladder (Fig. 181);

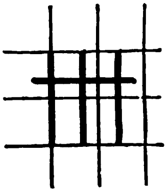
etc.

179.

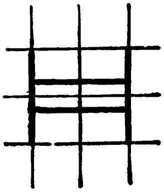


So, for instance, in laying a ladder, the children's attention should be called to the various kinds of ladders, and their different uses. The "Finger-game" and the "Hand-and-arm game" may here be introduced to the great delight of the little ones.

180.

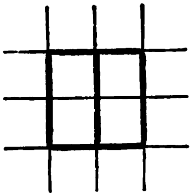


181.



With *five* sticks similar introductory exercises as above may be carried out, and then the children may proceed to laying *forms of life*, as, for instance:

182.



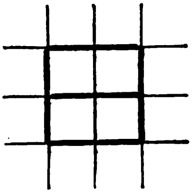
a French window (Fig. 182);

an English window (Fig. 183);

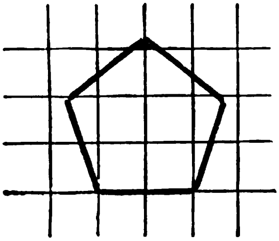
a hay-stack (Fig. 184);

a table (Fig. 185);

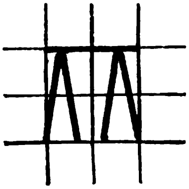
183.



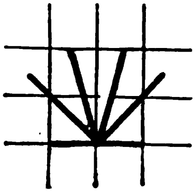
184.



185.

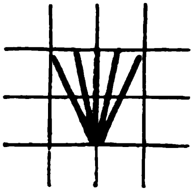


186

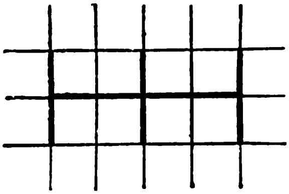


a cluster of flowers or grass (Fig. 186);

187.



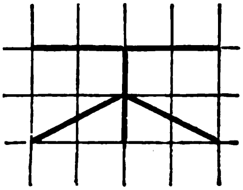
188.



a fan, half open (Fig. 187);

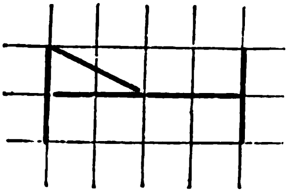
a fence (Fig. 188);

189.



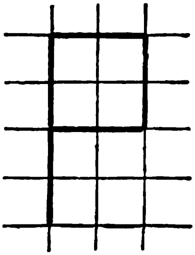
a parlor-table (Fig. 189);

190.



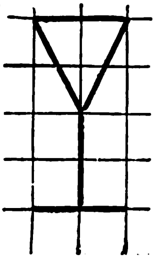
a bedstead (Fig. 190);

191.



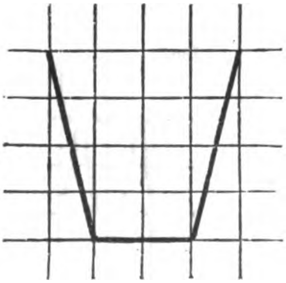
a flag (Fig. 191);

192



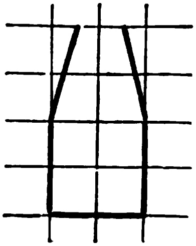
a wine-glass (Fig. 192);

193.



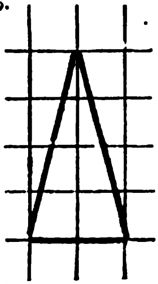
a paper-basket (Fig. 193);

194.

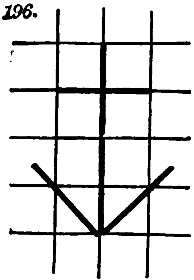


an oil-can (Fig. 194);

195.



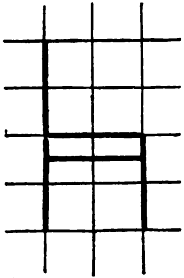
196.



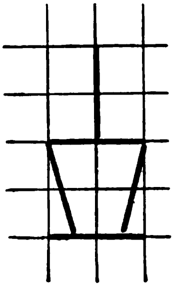
a sugar-loaf (Fig. 194);

an anchor (Fig. 195);

197.



198.

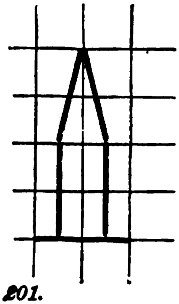


a chair (Fig. 196);

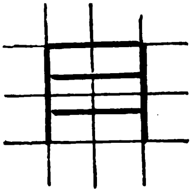
a flower-pot (Fig. 197);

a spire or steeple (Fig. 198);

199.

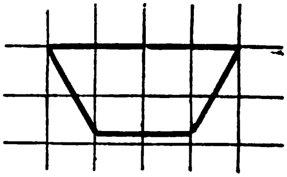


200.



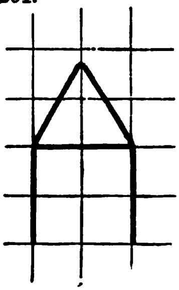
an old-fashioned bureau (Fig. 199);

202.



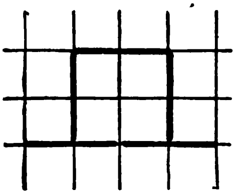
a cottage (Fig. 200);

201.



a boat (Fig. 201);

203.

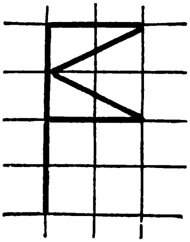


papa's hat (Fig. 202);

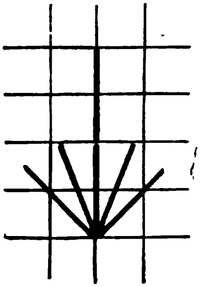
etc.

With *six* sticks the following can be laid:

204



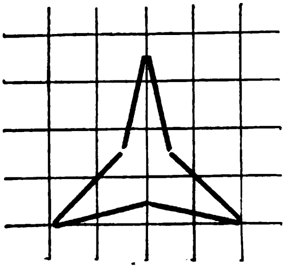
205.



a flag (Fig. 204);

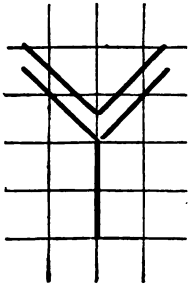
a twirling-stick (Fig. 205);

206.



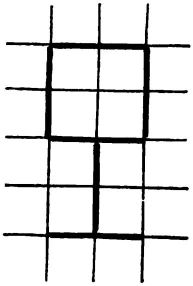
a star (Fig. 206);

207.



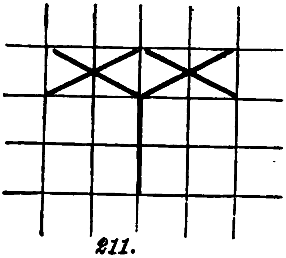
a tree (Fig. 207);

208.



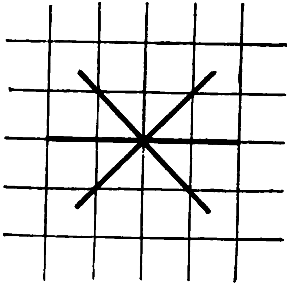
a shade (candle-screen) (Fig. 208);

209.



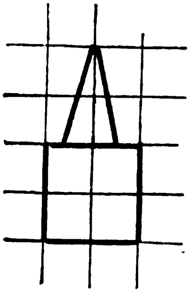
a reel or yarn-windle (Fig. 209);

210.



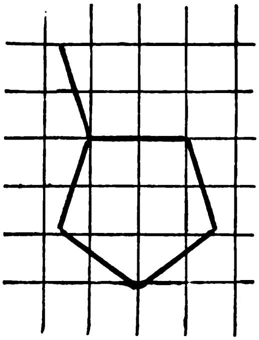
a six-rayed star; part of a railing (Fig. 210);

211.



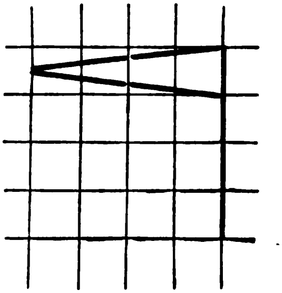
a picture and picture cord (Fig. 211);

212.



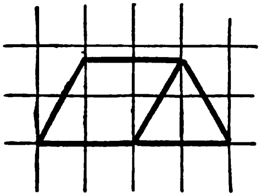
a rocking-chair (Fig. 212);

213.



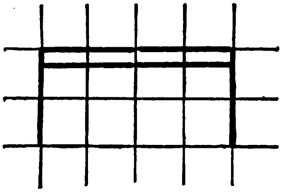
a narrow flag (streamer) (Fig. 213);

214.



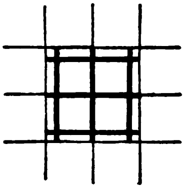
a gable roof (Fig. 214);

215.



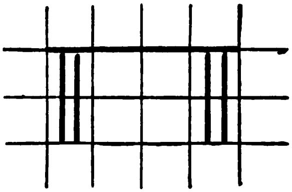
a table (Fig. 215);

216.



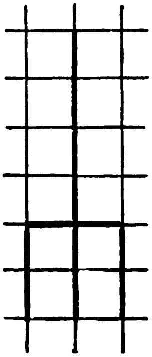
a window (Fig. 216);

217.



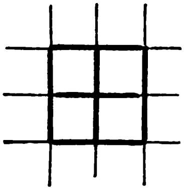
a table (Fig. 217);

218.



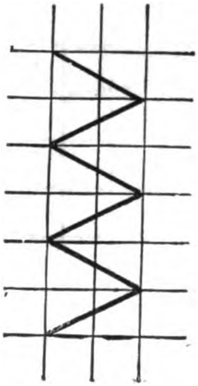
a pitch-fork (Fig. 218);

219.

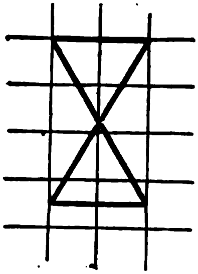


a window (Fig. 219);

220.



221.



a zig-zag (Fig. 220);

an hour-glass (Fig. 221);

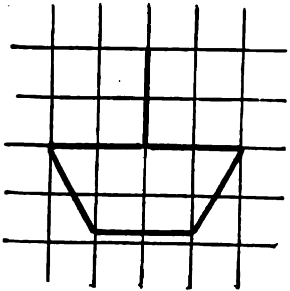
a barn (Fig. 222);

a boat with mast (Fig. 223);

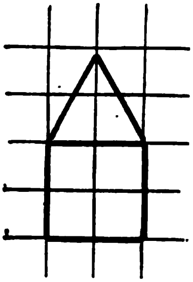
a parlor-table (Fig. 224);

etc.

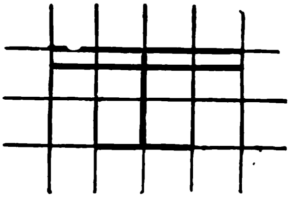
223.



222.

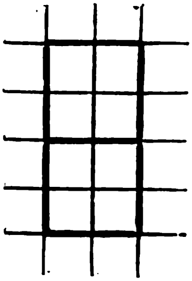


224.



With *seven* sticks the children may lay the following, for instance:

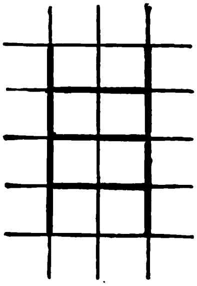
225.



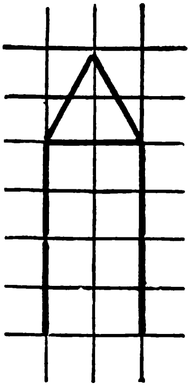
a window (Fig. 225);

a ladder (Fig. 226);

226.

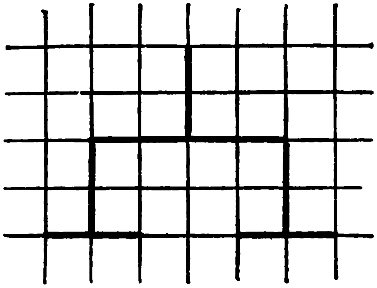


227.



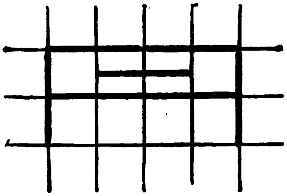
a steeple (Fig. 227);

228.



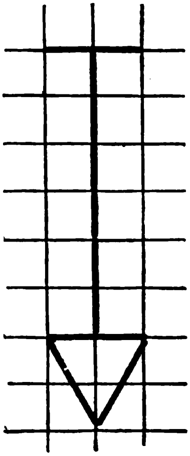
a balance (a pair of scales) (Fig. 228);

229.



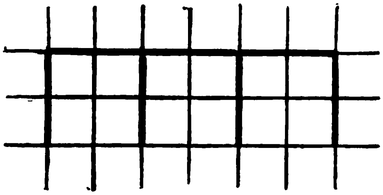
a piano (Fig. 229);

230.



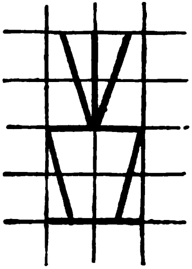
a spade (Fig. 230);

231.



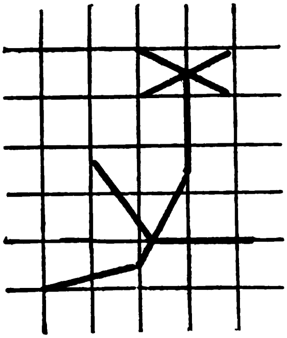
a bridge (Fig. 231);

232.



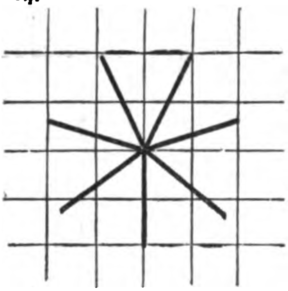
a flower-pot with flower (Fig. 232);

233.



a flower (Fig. 233);

234.



a seven-rayed star (Fig. 234);

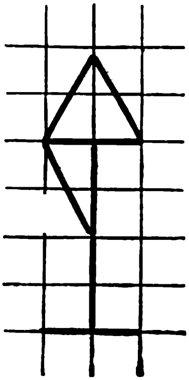
a lamp (Fig. 235);

a table (Fig. 236);

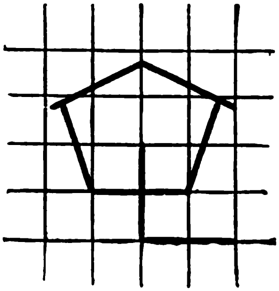
a street lantern (Fig. 237);

etc.

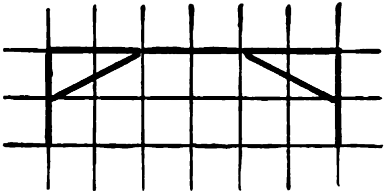
235.



237.

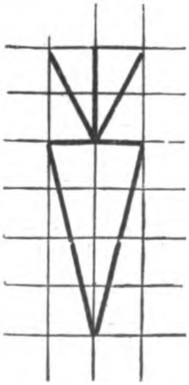


236.



With *eight* sticks may be laid, for instance:

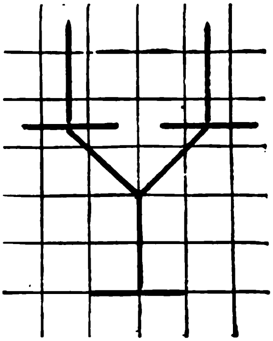
238.



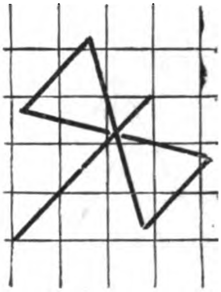
a carrot (Fig. 238);

a two-armed candle-stick (Fig. 239);

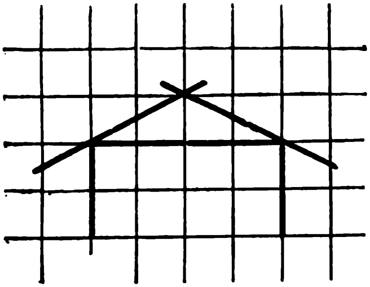
239.



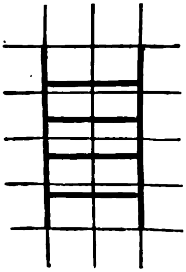
240.



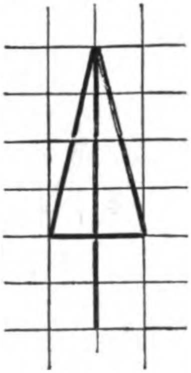
241.



242.



243.



a butterfly (Fig. 240);

a summer-house (Fig. 241);

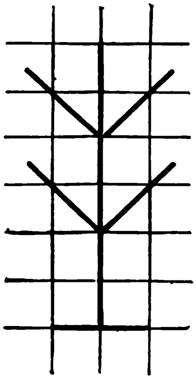
a ladder (Fig. 242);

a sun-shade or parasol closed (Fig. 243);

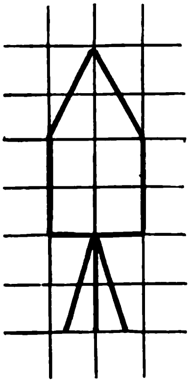
a tree (Fig. 244);

a pigeon-house (Fig. 245);

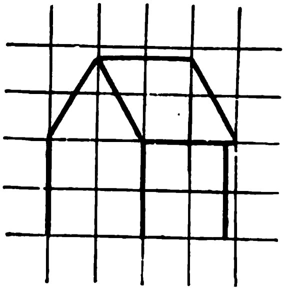
244.



245.

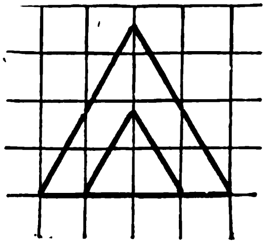


246.



a house (Fig. 246);

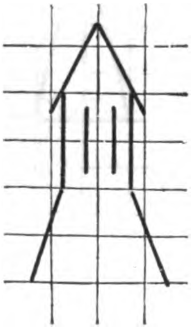
247.



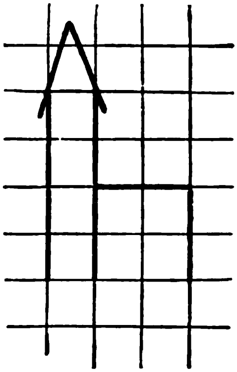
a tent with opening (Fig. 247);

a tower with a window (Fig. 248);

248.



249.



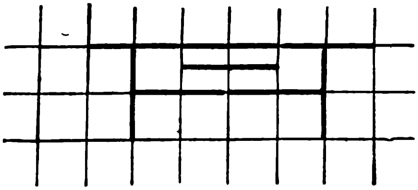
a church (Fig. 249);

a table (Fig. 250);

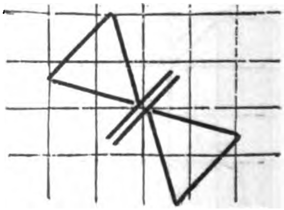
a butterfly(Fig.251);

etc.

250.

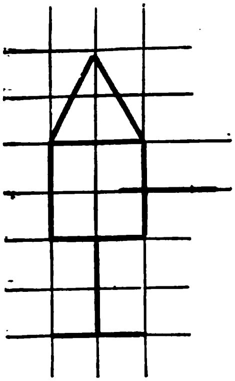


251.



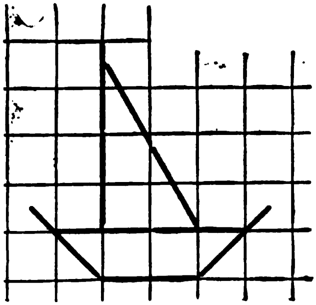
With *nine* sticks may be laid:

252.

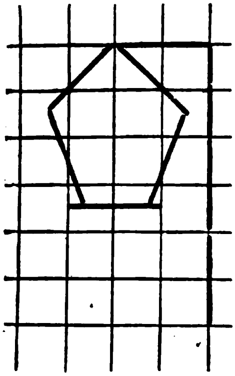


- a pigeon-house (Fig. 252);
- a sail-boat (Fig. 253);
- a swinging lantern (Fig. 254);
- a garden-hat (Fig. 255);
- a pair of scales (Fig. 256);
- a boat with mast (Fig. 257);

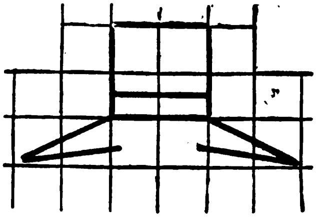
253.



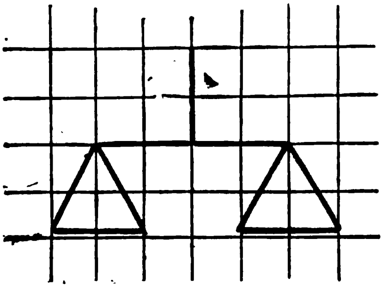
254.



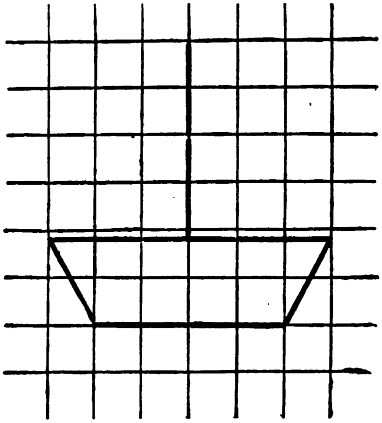
255.



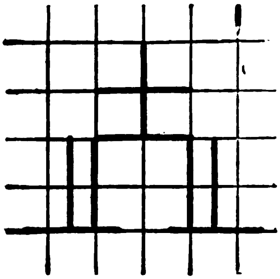
256.



257.



258.



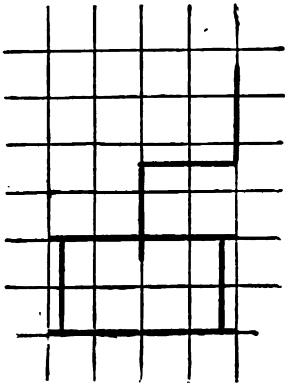
altar, cross, and candles (Fig. 258);

a coffee-mill (Fig. 259);

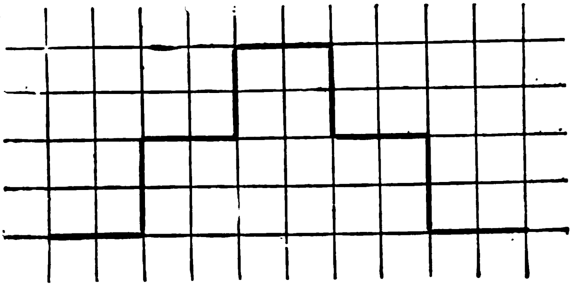
double steps (Fig. 260);

etc.

259.

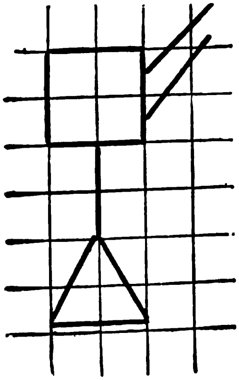


260.



With *ten* sticks may be laid:

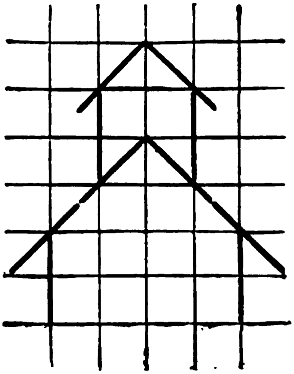
261.



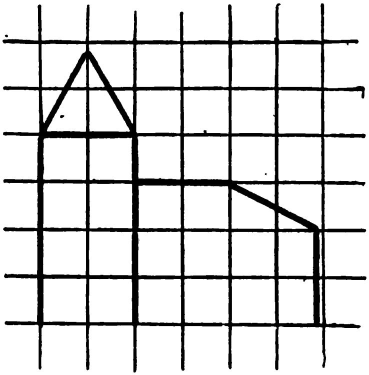
a kitchen-lamp (Fig. 261);

a villa (Fig. 262);

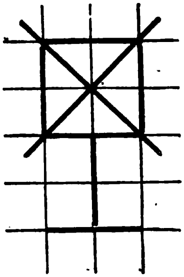
262.



263.



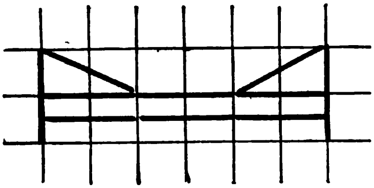
264.



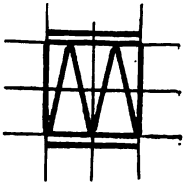
a village church(Fig. 263);

a yarn-windle or reel (Fig. 264);

265.



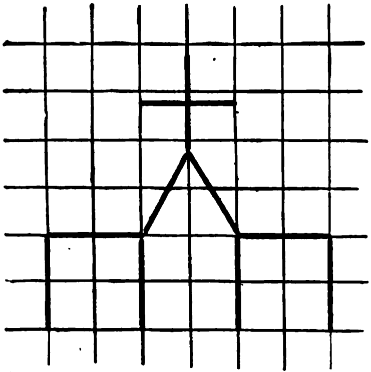
266.



a bedstead (Fig. 265);

a drum (Fig. 266);

267.

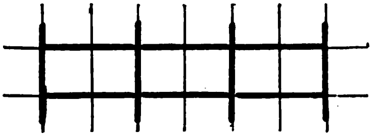


a church (Fig. 267);

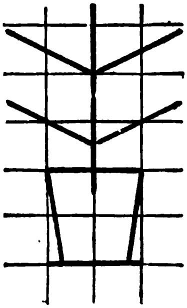
a fence (Fig. 268);

a flower-pot with flower (Fig. 269);

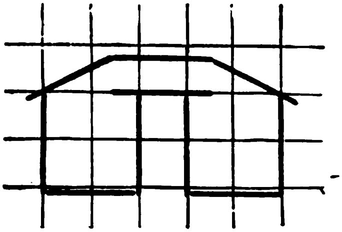
268.



269.

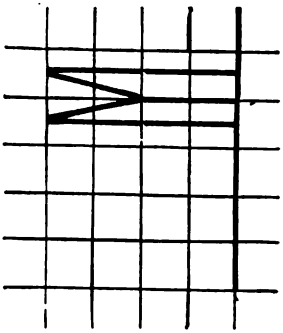


270.



a house;

271.



a vane;

etc.

When the child has learned to manipulate with ten sticks—*i. e.* as many as its little bundle contains—it may by degrees ask for as many sticks, as it needs in each case to carry out its ideas. But too many should never be given, nor should the child be allowed to leave them in disorder on the table, as then the benefit intended to be derived from this Gift, will not be obtained.

Soon, entire landscapes will appear; even animals—though their outlines will be rather angular—may be made; but the childish imagination proves of a wonderful power; and the effort to do the best within one's power in order to produce a proposed effect with given materials, is always a wholesome exercise.

One child, for instance, has made a pond with fishes, and the sun shining down on it, as only a sun, laid with sticks, can shine; but it delights the child — to the child all is reality; a tree also stands by the side of the pond — even the roots may be seen; but the tree has no leaves, for it is winter (Fig. 272).*

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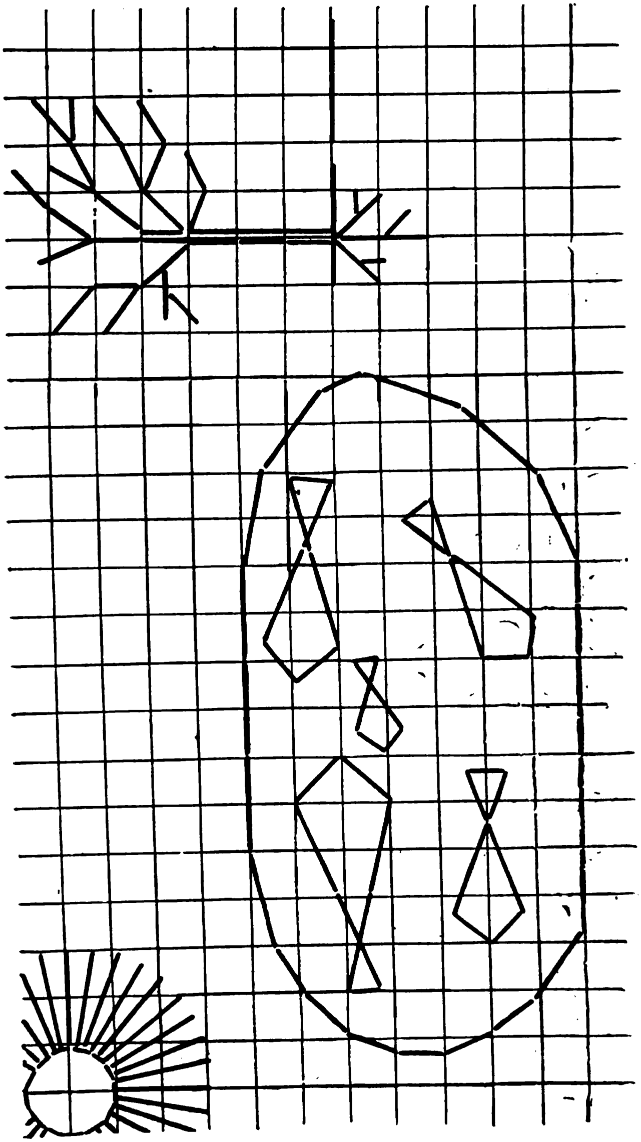
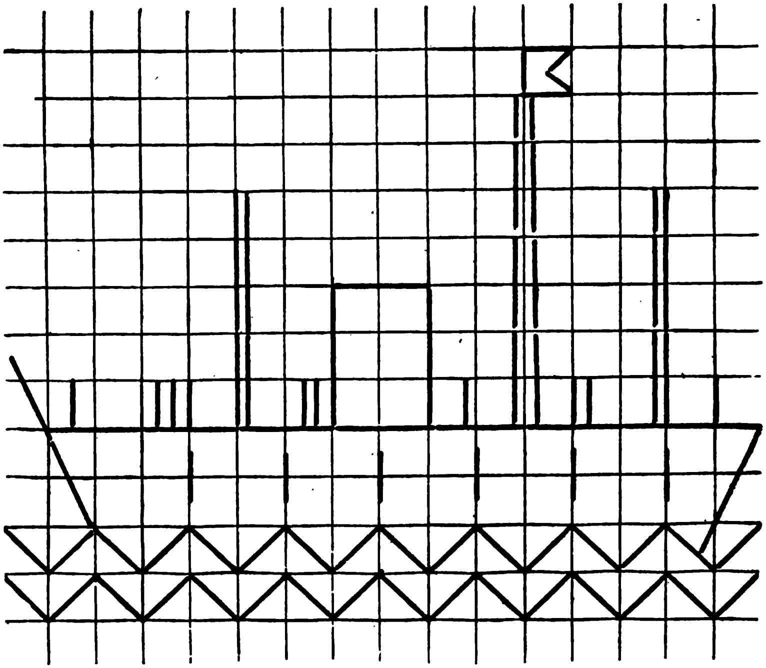
*) This and the following illustrations are reproduced from children's actual work.

272.



Another child has laid with its sticks a large ocean-steamer resting on rather angular waves; on the deck stands the captain, the sailors, and the passengers, each person being represented by one stick.

273.



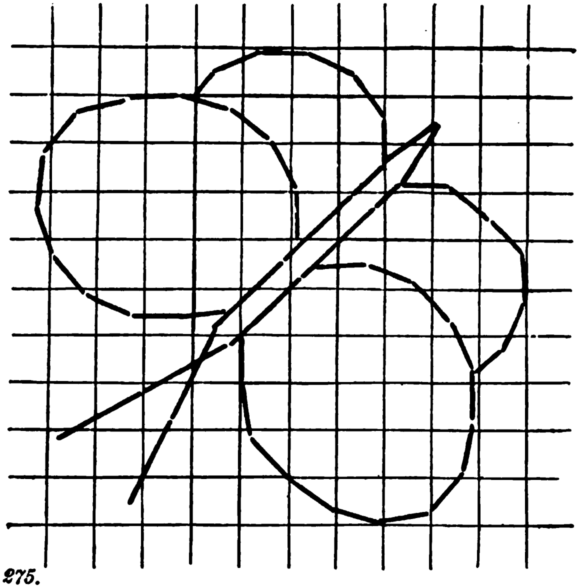
Still another would make a butterfly (Fig. 274); etc.

It may be imagined that work like this cannot be done without lively and instructive conversation — and even a song now and then.

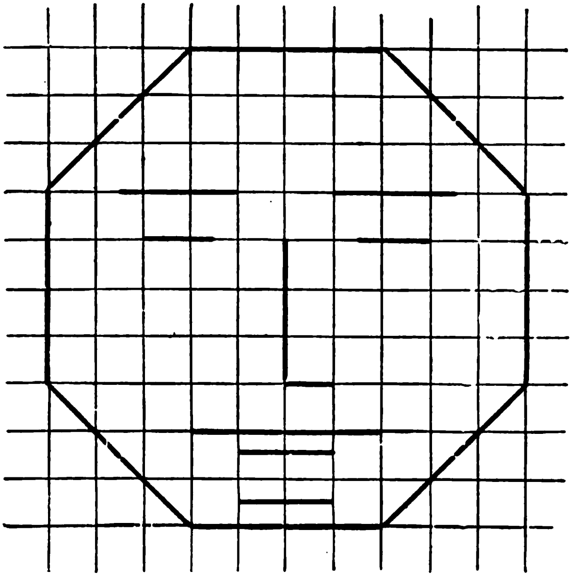
The full moon may be made as she appears to the child's eye (Fig. 275).

Another child made a house with windows, doors, and a chimney from which the smoke escapes, for dinner is just being prepared. By the house stands a tree; near by is even the "Mooley-cow," etc. Another would copy the leaf of a Calla Lily on the flower-stand. Still another would try to make its neighbor's face in *profile;* etc.

274.



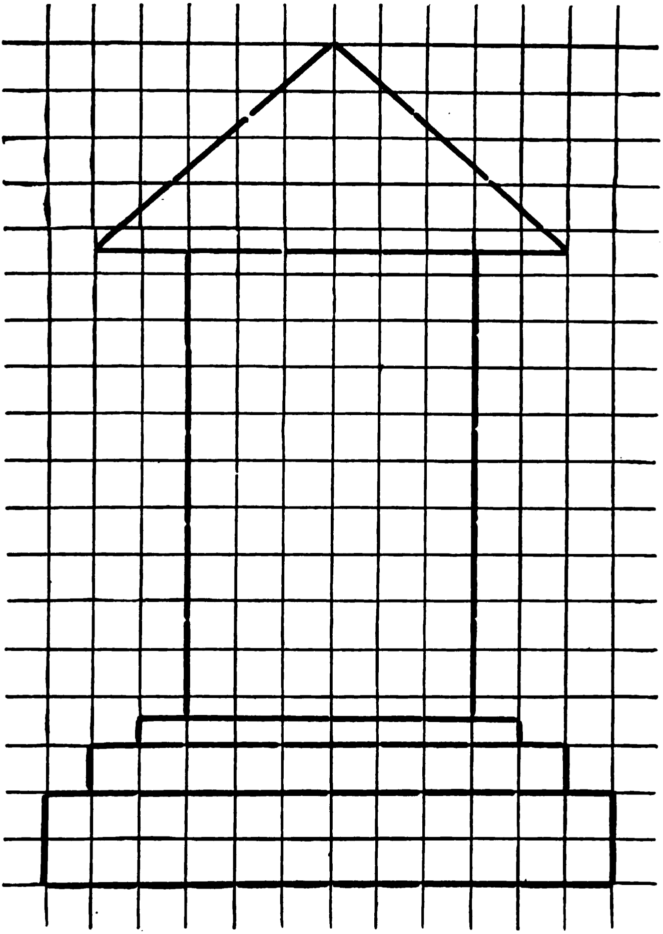
275.



Architectural forms may, at first, be dictated in the following manner:

Make an oblong from right to left, 12 inches long and two inches wide. Above this make another, 10 inches long and 1 an inch wide.

276.

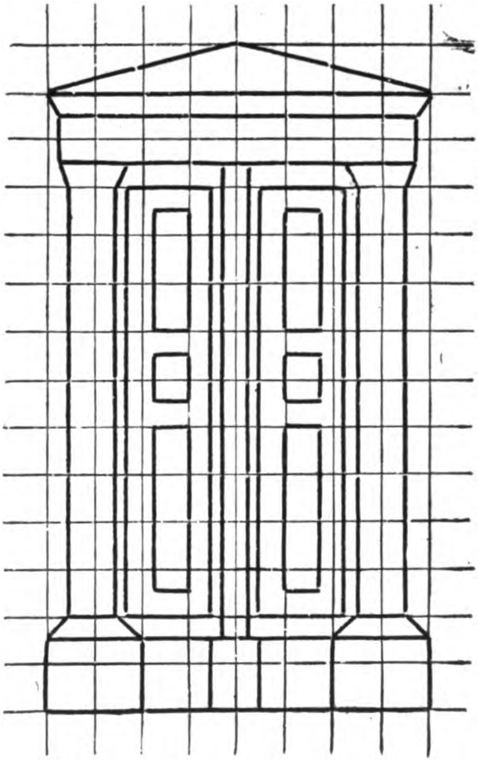


at even distance from the corners of the first one. Place above this another oblong of 8 inches in length and ½ inch in width, at even distance from the corners. An inch from the corner, towards the middle, lay, on each side, up and down, a line 10 inches long. Connect these two lines by placing above them an right-angled isosceles triangle, the base-line of which is 10 inches long (Fig. 276).

Or, direct the children to lay a house in the following way:

Make an oblong from right to left, 16 inches long and 8 inches wide; place above this an uneven four-sided figure having two of its sides parallel (boat-form or trapezoid), its longest side, touching the oblong, 18 inches long, its opposite side 10 inches long, and each of the slanting sides 6 inches long. Place above this in the middle a square of two by two inches.

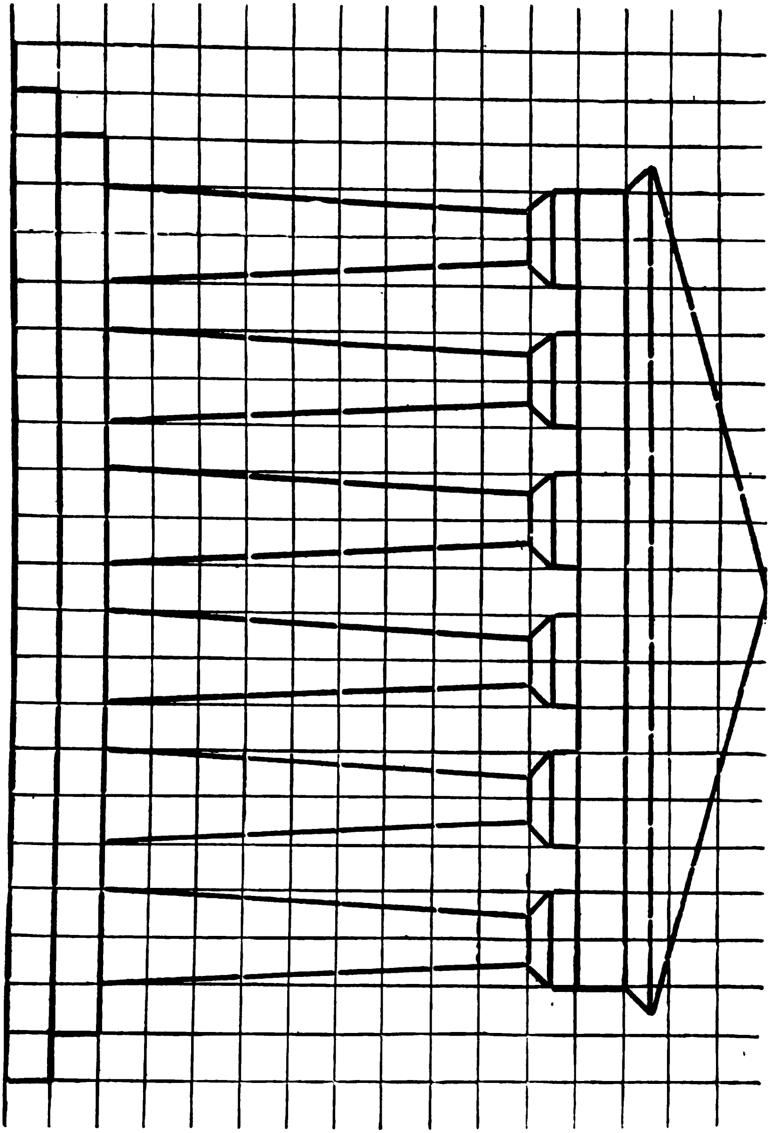
277.



Then, let the child make architectural forms of its own invention, for instance, the front of a house, allowing the child to put in some windows, a door, or any ornaments, just as it fancies (Fig. 277); or a portico (Fig. 278), a church, an elevated rail-road, a bridge with several arches, etc.

But the work to be done should always be treated as "play" in which the kindergartner partakes as a play-mate.

278.



The *forms of beauty*, or *symmetrical forms*, cannot, in this case, properly be called *beautiful* on account of the absence of curved lines.

The forms of beauty should begin with the square as nucleus or central part, inasmuch as it represents the most perfect four-sided form.

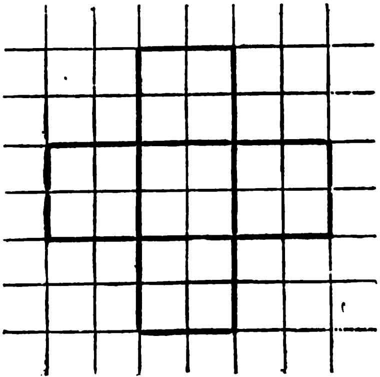
At first, the kindergartner gives directions for the enlargement of the form, and by degrees the children are left to their own resources; — this depends, of course, on the age and ability of each child.

At first, only sticks of the second length (two inches) are used.

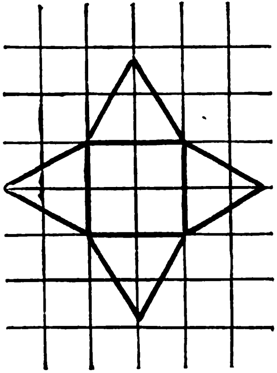
Proceed, for instance, in the following manner:

After the square has been laid, direct the child to lay another square (Fig. 279), or an equilateral triangle (Fig. 280), on each side of the central square.

279.

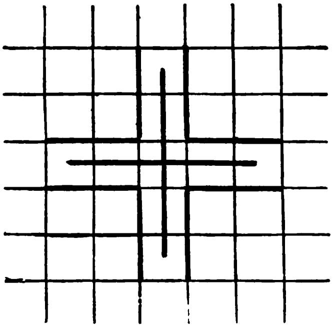


280.



Or, the child may commence its form by laying with four sticks, as central figure, a cross forming four right angles; within each angle the child is then directed to place with two sticks another right angle (Fig. 281).

281.

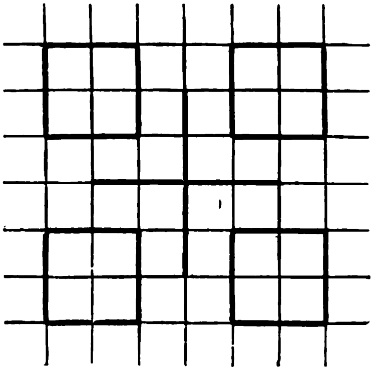


By adding to each of the four another right angle in such a manner that its corner is turned outward, four squares appear inside of, and at equal distance from, the angles of the cross (Fig. 282).

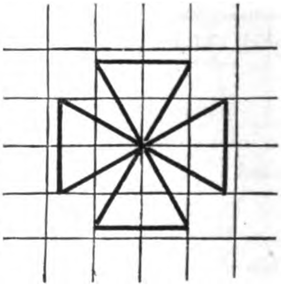
Or, direct the child to form four equilateral triangles joined in the centre by their corners (Fig. 283); join each two of these triangles by means of two sticks forming an acute angle, and four rhombs appear (Fig. 284).

Or, lay with two sticks a slanting cross having four right angles; place opposite to each end, at a distance of about a quarter inch, a right angle made of two sticks; finally close up the ends above, below, at the right, and left, each by a stick, and a pretty cross appears (Fig. 285).

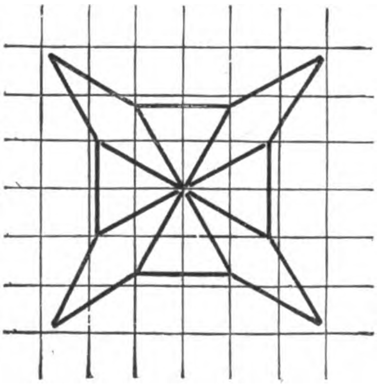
282.



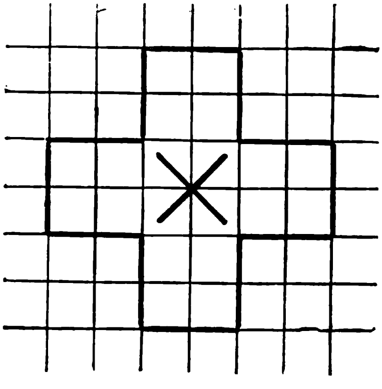
283.



284.



285.



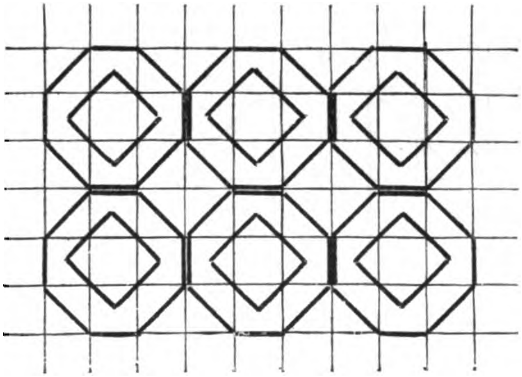
Thus the child proceeds, using by and by sticks of various lengths always in such a manner, that every corner or side will be like the opposite. When each stick is very carefully laid, measuring distances, positions, and proportions is an excellent training for hand and eye;—and, as by degrees the child learns to ask for as many sticks as it needs to carry out its idea — taking *one* for every corner, and *two* for every side, and calculating the length of the sticks — the little one receives practical lessons even in multiplication long before it knows that there is such a big word.

The same form may also be repeated side by side several times, thus forming a plain pattern, or a border.

For example:

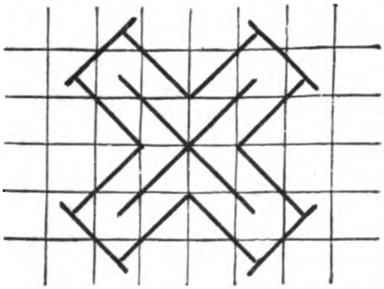
Make an eight-sided form (octagon) with eight sticks of equal length, and place inside of this a square corner-wise. This figure repeat twice, placing the three side by side. Then lay below these forms three more of the same kind, etc.

286.

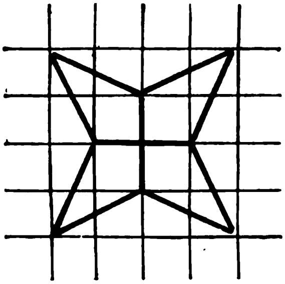


The following forms (Figs. 287—295) may be similarly carried out:

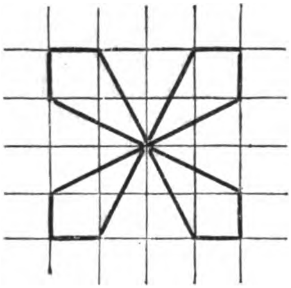
287.



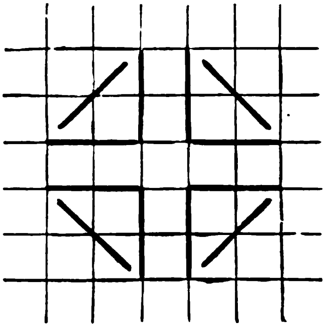
288.



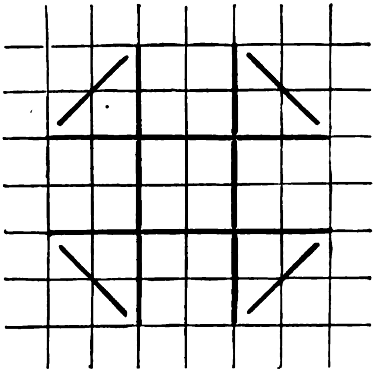
289.



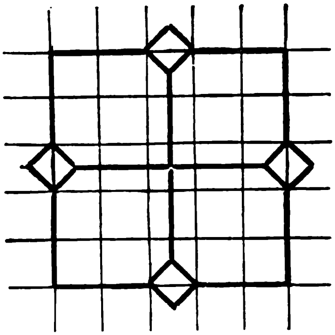
290.



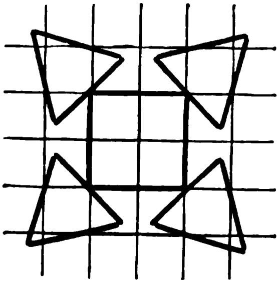
291.



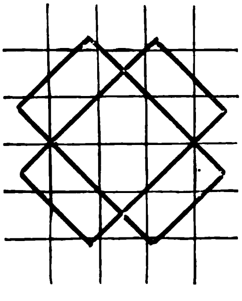
292.



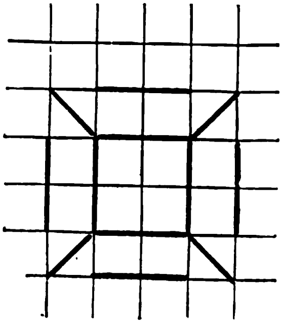
293.



294.



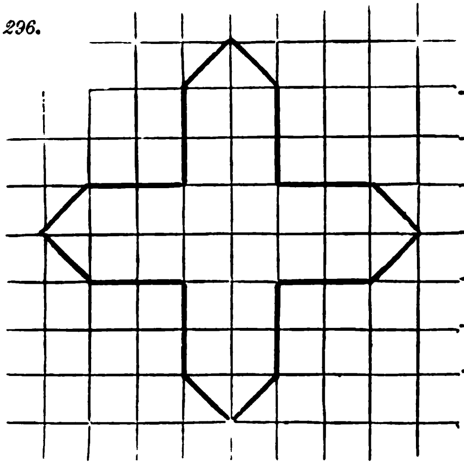
295.



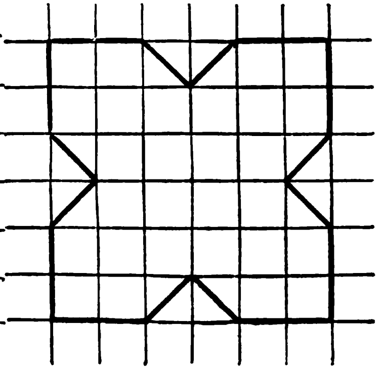
The form (Fig. 296), representing a four-rayed star, may be changed by turning the right angles outward, and we have an eight-rayed star (Fig. 297).

Turn the upper, lower, right, and left outside corners inward, and we have the slanting cross (Fig. 298).

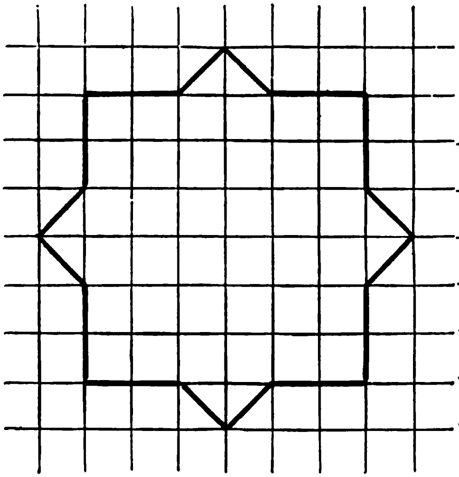
296.



298.

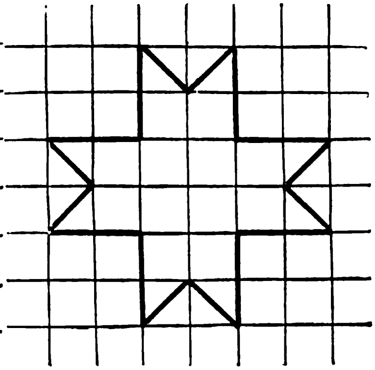


297.

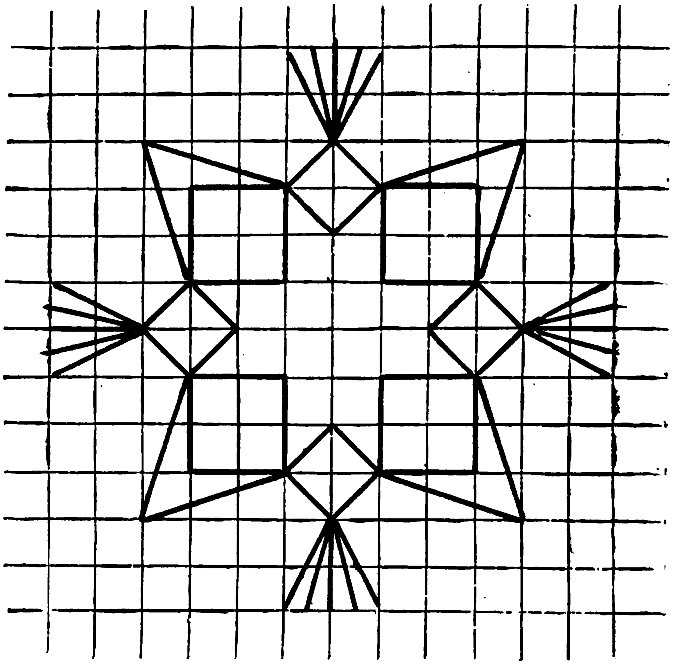


Now turn the other four outside corners also toward the inside, and another kind of eight-rayed star appears (Fig. 299).

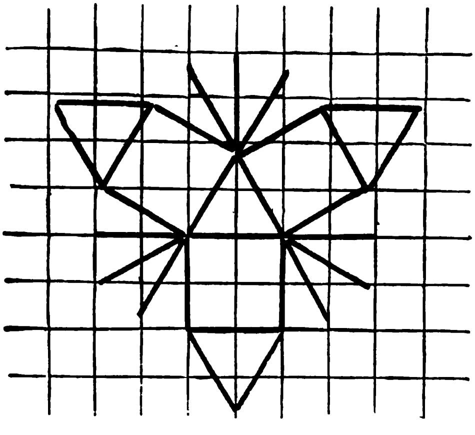
299.



300.



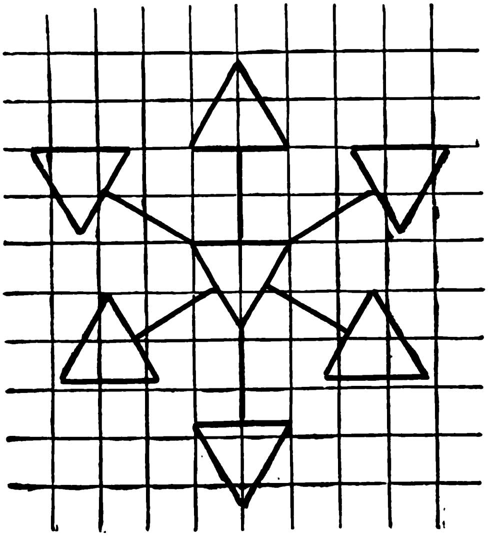
301.



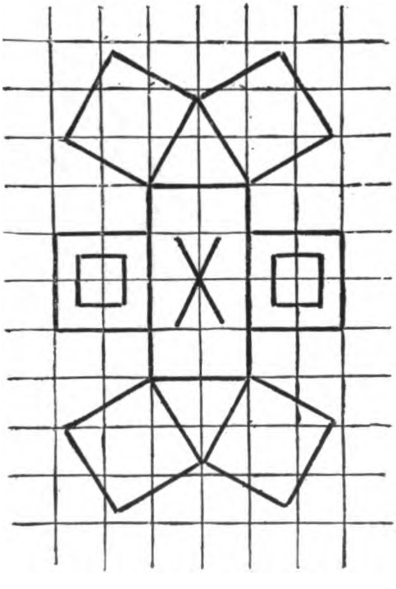
Further, each of the given forms may be "built out" (as the children term it), viz.: by adding, by means of additional sticks, *more* and *new* forms (for example Fig. 300).

With an equilateral triangle for the central part, three-sided forms are developed (Fig. 301), which, by proper arrangement, grow six-sided (Fig. 302).

302.



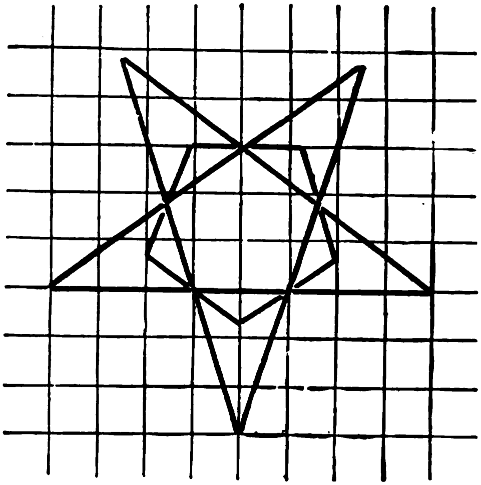
303.



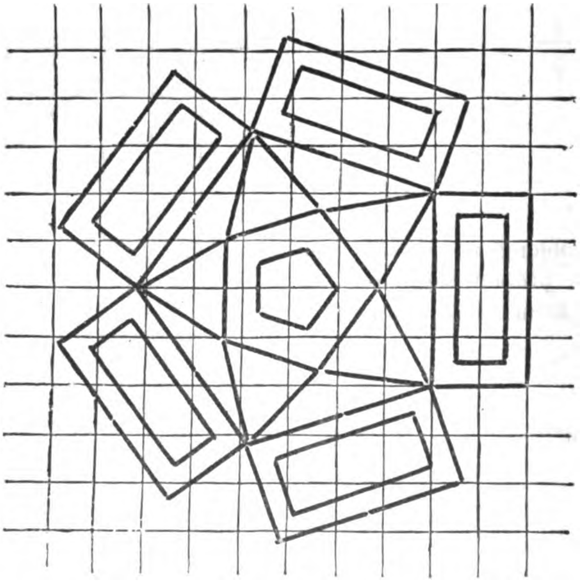
The oblong as central form gives the proper beginning for two-sided forms (Fig. 303).

The pentagon is the start or outset for the five-sided form (for example Figs. 304 and 305):

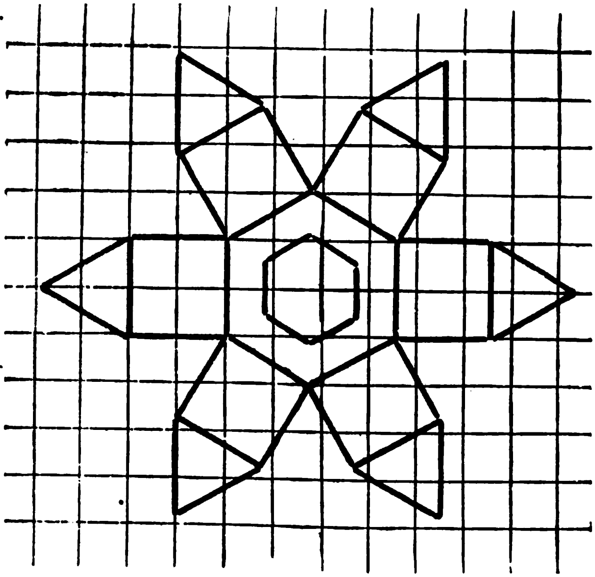
304.



305.

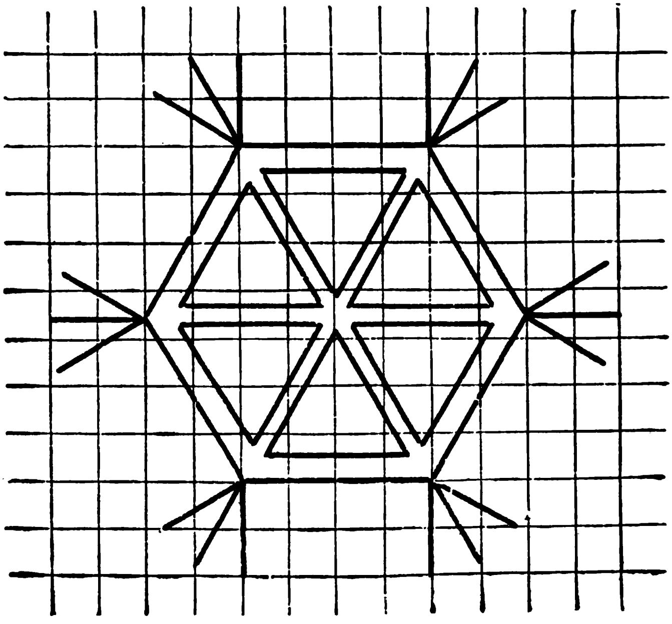


306.

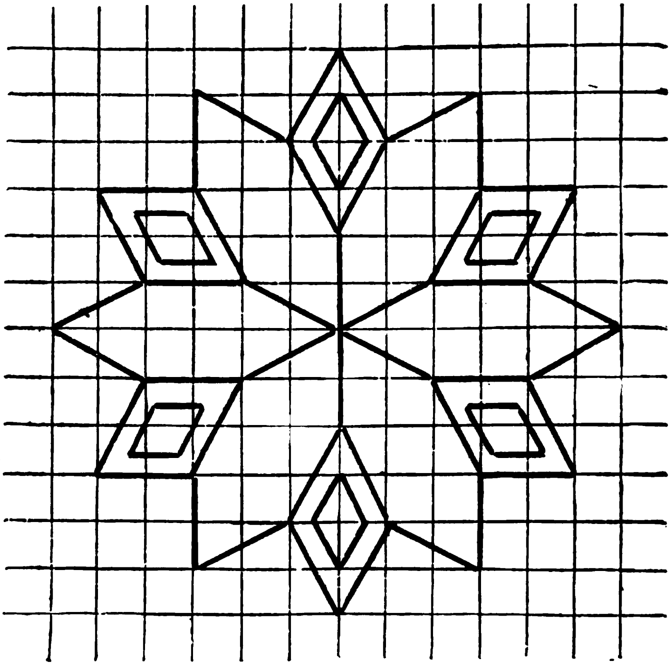


The hexagon is the outset for the six-sided form (for example Figs. 306, 307, and 308):

307.

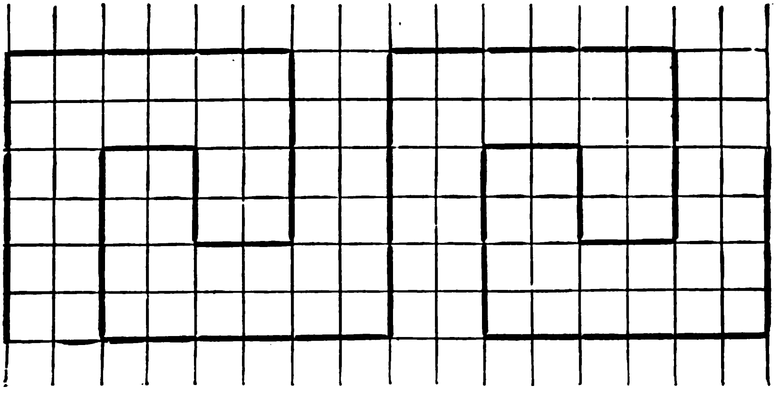


308.



Borders may also be laid, for example :

309.



With sticks of from one to five inches, various forms of the drawing series may be represented.

Thus information on the same thing is constantly and playfully repeated, and gradually added to, so that the child does not grow bewildered by a "too much;" thus it develops gently and gradually its mind and its faculties. For the child's brain should never be overloaded, nor hurried, nor should its bodily strength be overtaxed. Useful as the facts are which the child learns, its *chief* gain is "*learning how to use the mind.*" Nature mounts by regular and logical steps. If the child learns the motion and direction of the ascent, it will be ready, later, when a man or a woman, to use the same powers in more difficult exertions. If, as a child, the human being is taught to deduce certain principles, this is a training for after life, greatly assisting the grown up person in making scientific or philosophical inferences. It is the unconsciousness of the training that makes its worth. It is *the thing* and *not the name* that is important in the kindergarten method, and the true kindergartner will take good care not to burden the child's brain with a hard name, until the name stands, to the child, for an already familiar fact.

The laying of sticks is a fascinating occupation for children, and they often hail the little sticks with strong expressions of delight; for they never consider them "lessons" in the usual meaning of the word.

By starting, in the forms of beauty, from *a given* form — one of the original forms of knowledge — they receive unconsciously a lesson; and from this given form they "build out" according to their own ideas, symmetrically, thus obtaining very regular and, in most cases, very pretty stars.

What significance has the exercise with the sticks?

The child, in the first place, learns to look at, and becomes acquainted with, the numbers from one to ten; then it learns to abstract the outline of forms, thus enlivening and strengthening the faculties of memory and representation. The faculty of camparison also is exercised, and by the abundance of representations and observations the powers of intuition and comprehension are strengthened.

To what age are the sticks particularly adapted?

The sticks are fit for that age in which the child has gained the capacity of occupying itself with the sticks judiciously — sensibly —

this occupation might, therefore, begin when the little one is four years old, and might be carried on until the boy or girl is 8 or 9 years old.

Are free exercises allowed?

Certainly. Just as "free-building" and "free-cutting" are carried out simultaneously with the directions of the series, so are children allowed *to lay forms as they please.* In doing so, their attention is called to the fact that the sticks are not very appropriate for representing organic forms.

Two or *more* children may unite to make one form.

Architectural forms allow and need short conversations on the objects represented.

Symmetrical or ornamental forms, while rarely admitting of any remarks on real or concrete things, rather call the child's attention to mathematical relations; but all direct or doctrinal drilling in this respect should be carefully avoided.

The sticks *may* be curved by cracking or bending them, which gives a new feature of attraction, and helps to make forms of life more *lifelike,* although these curves are rather imperfect.

In order to preserve such forms, so that they may be taken home as little presents for Mamma or Papa, the sticks may be gummed or sewed on strong paper.

The truth underlying all directions and explanations as given in the foregoing exercises, is that the child develops itself naturally only through *creative activity* and by *living out* or anticipating, as it were, instinctively its future in plays and games.

For that reason the child *plays* with so much earnestness, because *in its play it sees its very work.* By its play, it is entertained, occupied, satisfied, and exhausted, until by rest it is called up to renewed activity.

The imagination — ever active in the child — enlivens the play, and brings out continually new points.

The objects that surround the child, are the first ones which it represents; with them it imitates and connects the actions and works from the life of Nature and of man. To these the child is led by the resemblance which it sees between the objects around it, and the play-material at hand. And the child does it so masterly, that the adult is often obliged to collect his thoughts in order to follow the child in its childish flight of ideas.

THE ELEVENTH GIFT.

RING-LAYING.

Whereof consists the material used in this Gift?

The material used in this Gift are wire *rings* or *circles,* and *half-circles,* of three different sizes, viz.: either one inch, one and a half, and two inches, respectively, in diameter — or rings of any other three different sizes. A box generally contains twenty-four rings of each size, and forty-eigth half-rings of three sizes corresponding to the rings.

After the child has become familiar with the straight line in the Stick-laying, it is given the *embodied curved line* — the half-circles and circles. By means of these the child becomes familiarized with the properties of the curved lines, by laying them in different positions and arranging them in various ways and combinations, thus producing richly varied forms.

By what right are the rings among Frœbel's Gifts?

The ring represents the curved stick, or the periphery of the ball and sphere and the embodied edge of the cylinder. Just as the stick corresponds to the cube and the tablets, so the circle corresponds to the sphere and the cylinder. Therefore the rings, as a laying game, are just as appropriate as is the stick in the previous Gift. With the stick, geometrical forms and representations of objects *(forms of life)* were best made, whereas with the rings alone, more numerous *forms of beauty* can be made.

The rings and half-rings may be introduced simultaneously — all that *is* necessary is, that the child should be made to understand the capabilities of this new element of instructive play; and only so much should be given as the age and capacity of the child warrant. The ring in itself is a familiar form to children, it being an almost universal ornament for the finger; it is also used as a plaything in various games, for instance: the graces, the more common hoops, etc.

In what manner are the rings used in the Kindergarten?

The method is the same as in the Stick-laying: *number is the guide.* In simple language various facts may be stated, and always so explained that the children may *not* merely acquire a number of words. The ring is interlinked with the most delightful memories of childhood. The realm of "faery," which is the child's kingdom, is as full of magic circles as is Ireland of "fairy-rings." Doubtless every child longs to possess, or behold, one of these legendary rings, when listening to a fairy-story, as much as it does to own the "invisible cap," or the "magic carpet," or the "wonderful lamp." Now, in the ring-game, the child *is* presented with a ring —not made of rich metal, nor set with precious stones, but full of harmless magic, and powerful to open to the child *one* portal at least of the "land of the gnomes," and reveal to him many Plutonian mysteries. The key to this, to the child yet closed door, lies in the *material* of which the ring is made. The rings and half rings are made of iron or steel, and the child will listen eagerly to the story of "how iron is found." The child may be told that iron is the most useful of metals; that though gold is the more costly, yet iron is infinitely the more precious. Looking around us we find ever so many articles of daily use and necessity that are made of iron. Its adaptability is such, that it is applied to a greater number of purposes than all other metals combined. For instance, the great engine, or "iron-horse," as it is fitly named, garden-seats, fences, fountains, statues, gates, cooking utensils, our stoves and grates, the locks on our doors, and a countless number of other things are made of it. And if we examine the works of a watch, we find that the delicate little spring — almost as fine as a hair — which gives motion to the balance wheel, is also made of iron. No other metal so increases in value by reason of the labor bestowed upon it. Behold, for instance, a piece of ore or pig-iron! — A child would hardly pick up either, if it found it. But when this same piece has gone through certain processes and has been operated upon by a skillful mechanic, how valuable it becomes! When the snow has melted, and spring-time comes, those who have gardens will want to dig up the flower-beds and rake them over nicely and smoothly before putting in the seed; — and this cannot well be done without the help of hoe, spade and rake. Also the scissors, with which we cut such pretty forms, and the needle, without which we could not make our clothes, nor sew out such pretty things, are made of iron. By talking similarly to the child its attention is awakened, its observation is exercised, and the interest in the little iron rings grows deeper. The child also becomes better prepared to hear the history of iron, which is found almost all over the world, and the great utility of which has been known from the earliest time.

A piece of iron may be shown, and the children led to find and name its qualities — heavy, bright or dull — as the case may be — cold, hard, grayish black, or silvery, like the rings, etc. The children may be told that iron comes from the earth; that it is brought out from places in the earth called "mines;" that the men who bring out the iron are called "miners;" that each miner requires a light or lamp, and why they require it, and how they wear it, and about the tools they use, their clothes, etc. A description of the "shaft" may be given, by means of which the miners descend and ascend, the children may represent a shaft with the bricks, or the kindergartner may make a simple drawing of it on the blackboard. How eagerly the children will listen, when told, for instance: "Once upon a time, these rings were down under the ground, deep in the earth, until people, called miners, made shafts into the ground and went down in baskets or buckets with their tools, to knock and hammer out the iron — it being then called 'ore,' because of being mixed with other substances, as earth, clay and stones." The child will easily understand, when told that a shaft is a large hole dug into the ground and walled up, so as to keep the earth from caving in. Some mines have two shafts, so that people can go down while others are coming up, and the shafts are crossed by long passages called "galleries." If we look down into a shaft we see nothing, because all is dark. Below, where the miners work, of course all is dark, too; there the miners are digging out great pieces of ore with their picks. Each miner has a lamp or candle, fastened either on his cap, or belt, or in the rock above him; this gives him light enough to work by, whilst all around him is dark and gloomy. After the ore is dug out, it is put into great baskets or buckets and brought up to the light of day, and is afterward taken to large furnaces built of brick or stone, fastened outside with heavy iron work, so that the great heat which is necessary for melting the ore shall not force the bricks apart. These furnaces are generally built with a square bottom or base, and are sometimes fifty or sixty feet high. The ore is broken into small pieces, piled in heaps on the floor of the furnace, mixed with small coal, and then the heap is set on fire. This is called "roasting the ore." The mass requires many days before it burns throughout, and thus the iron of the ore is melted until it becomes almost as liquid as water, and the clay and other foreign substances that were in the ore form a scum on the top of the melted iron; this is taken off, and thus the iron is cleared from the dross. The men who do this have to be very careful not to burn themselves. The melted iron is let into oblong holes or moulds made in sand, where it is left until it is again cold and hard. These moulds are called "pigs," and these iron bars are called "pig-iron," which latter are removed and taken to the foundry, where they are again melted, and a great variety of things made of them. How the iron bubbles and seethes! — a red-hot liquid in the red-hot chaldrons! and is ladled therefrom into moulds. Some of it is made into *wire*, and some of this wire was made into rings for the kindergarten. The ductility of iron is such that it can be drawn into fine wires of the greatest tenacity, as we see in the telegraph wires that cross the streets. The child may also be told that the iron can not only be drawn out (is ductile), but possesses the property of uniting (welding) with another piece of iron; when both have been brought into a red heat, they are beaten together with powerful strokes and become incorporated as if originally *but one*. The magnet may be introduced, and will be of never-failing interest.

All scientific terms and expressions should be avoided, and, instead, more life and detail employed. What fairy-story would more interest a child, or be more apt to awaken its imagination, than a graphic description of mines and all that belongs to them? If these plays and talks are presented correctly, the child will learn to observe in a different manner than ever before, all the iron objects it sees around. The more a child is interested in the common things surrounding it, the more of beauty and poetry, joy and happiness, it will have throughout all its life, no matter what its future position may be; — and the practical benefit of such habits of observation and thought can not be estimated. — The child may be shown *how* the iron changes color when it is placed in the fire and becomes red-hot. Mention may be also made that iron is liable *to rust* if left in the wet or damp for a while, and that the rust wears it away. This may easily be shown by placing a nail in water. Even the very rings which the children use in this Gift, sometimes grow rusty by being touched with damp hands, or otherwise exposing them to dampness.

A piece of iron ore may be shown, in order to let the children notice the iron and the other substances of which it is composed.

By hearing all this in a simple way — every day a little — the children will soon have an idea of iron, mines and miners, and of the hard and dangerous life of the latter. Playfully an instructive lesson may be given by placing an iron ring or half-ring in a tumbler containing water, and then doing the same with a little stick, and the children will observe that the heavy iron *sinks*, while the light wooden stick *swims.*

Mention may also be made, that steel is made of iron, and that it is very elastic and one of the most useful of metals.

Also, what renders iron so extremely useful to us is its strength! If we wish to make a strong chain, a strong bridge, a strong water-tank, we use iron. Many of the steamers on the ocean are clad in iron. — Iron is even used as medicine — being an important constituent of the blood and animal tissues.

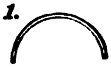
Of course, great discretion must be exercised, so that instruction be not given beyond the ability and age of the children; for though ability may be there, often at a very early age, yet the powers of digestion, mental as well as physical, are still very weak. A good kindergartner *never* pushes, for *that* is the work of the inferior teacher, and is far easier than to develop gradually, naturally, day after day, week after week, month after month, and year after year.

The curved line was introduced in the Stick-laying by bending or cracking the stick; but this was a very imperfect representation of the same. The circles and half-circles, however, show us the curve in all its regularity, The rings and half-rings may either be distributed by the kindergartner, or by one of the children; and the children may also be required to hand them from one to another, thus learning to be considerate and polite to their neighbors.

How are the rings and half-rings used in the kindergarten?

One large half-ring may be given first; it will be compared with the little stick, as used in Stick-laying, and the points of similarity and difference between the embodied curved line and the embodied straight line, will be noticed. The half-circle may be placed in different directions (concave, convex), its two ends are noticed, it is compared with other things, as, for instance:

1.



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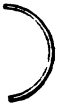

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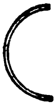

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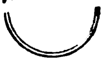


an arch (Fig. 1);

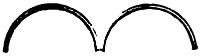
the new moon (Fig. 2);

the decreasing moon (Fig. 3);

a dish (Fig. 4), etc.

Two half-rings may next be introduced, by placing and arranging them in various ways; they may be

5.



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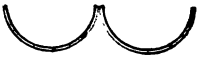
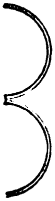


curves upward (Fig. 5);
curves downward (Fig. 6);

7.



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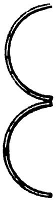
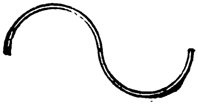


curves to the right (Fig. 7);

curves to the left (Fig. 8), etc.;

9.



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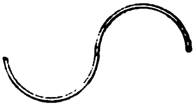
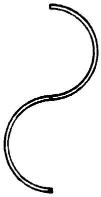


one curve upward, the other downward (Fig. 9);

and the reverse (Fig. 10);

11.



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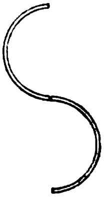
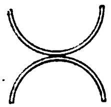


one curve to the right, the other to the left (Fig. 11);

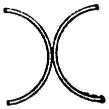
and the reverse (Fig. 12), etc.

13.



The two half-circles touching each other in the curves in opposite directions (Figs. 13 and 14);

14.



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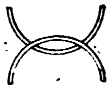

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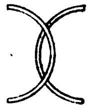

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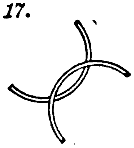
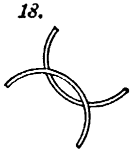


The two half-circles overlapping each other in opposite directions (Figs. 15 to 18);

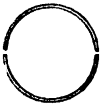
18.



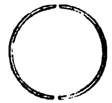
The two half-circles, touching each other at their ends, finally form *the circle.* This can be done by placing one half-circle with its curve upward, and the other with its curve downward (Fig. 19),

or one half-circle curved to the right and the other to the left (Fig. 20).

19



20.



Formerly, when the child combined cubes, tablets and sticks, corners and angles were formed; but the cube could not contain another cube *within* itself, nor the square a square, nor the stick a stick; nor could two cubes, or two planes, or two sticks make an enclosed space; this could only be done with three or more cubes, planes or sticks. But *two half-rings* enclose a space, when so placed that their ends meet closely. And we can also place circles within circles, by always placing a smaller circle within a larger one.

The absence of angles in the circle may be pointed out.

The ring, like the stick, can also be *held* from right to left, from front to back, up and down; but it cannot be *laid* on the table in these various positions. It may easily be seen that the exercises with the *half-rings* are of the greater importance, although the whole ring, without beginning or end — the concentrated embodied circle, as it were — has already a great charm in itself for the child, while, on the other hand, the half-circle looks different with each shifting of position — appears a picture of something.

The square, or the triangular one-inch network on the table can be used with the rings. The form grows by grouping the half-rings or rings around a square or a triangle, and thus are produced three, four, six, or eight-sided rosettes, which, when several of these are joined, may be used for simple ornamentation.

For the next exercise, the two half-rings may be exchanged for one whole circle, *which can fill but one position* on the table, and the child can make no changes with it, as it could with the half-circles — unless it is rolled or twirled around, spinning it like a top, which will, of course, create great mirthfulness.

The ring is compared to other rings, and soon the finger-ring and hoop will be named.

The children may also be asked to name what they see around them of a shape similar to the ring, and many things will be mentioned; also this will be the best possible opportunity to impress on the young minds, by practical comparison, the difference between the roundness of a ball, the roundness of the penny (or any other coin), and the roundness of the ring.

The ball is round "everywhere," as a child once expressed itself; the coin is flat and has an edge similar to the circle; while the ring is only like a round (circular) edge, and we can look through it and put the finger right through it.

What mathematical theorem is demonstrated in the circle?

That the circle is a line, every point of which is equi-distant from its centre.

Can parallel lines be shown?

They can be shown by placing a small ring within a larger one.

What is the methodical process in the ring-game?

The easiest process for the child is to begin the exercises with the whole rings (the exercises with these being less complicated than with the half-rings), commencing with one, then proceeding to two, three, four — up to twenty-four rings; then two, four, six, eight half-rings are given, up to forty-eight half-rings. Lastly, whole and half-rings are combined. — The order may also be reversed, or whole and half-rings may be given alternately or combined.

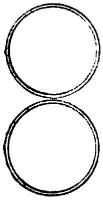
Circular forms we see everywhere around us, in nature as well as in works of art; and the ever-active child will readily draw comparisons from the surrounding objects to the forms it is laying with the rings.

The three groups — forms of knowledge, forms of beauty, forms of life — may again be found in this Gift, although the forms of life are few in number, and not very striking representations of the objects; and the forms of knowledge are contained, as it were, in the forms of beauty or symmetry.

Beautiful symmetrical forms are made with these little rings, always commencing with some central form to which, systematically, rings or half-rings are added, as the case may be; thus the eye will be trained to accuracy, and also a taste for all that is beautiful and symmetrical is formed and trained, the perceptive faculties and the senses are awakened, made active and strengthened. Mind, eye and hand always work conjointly. By playing thus with the wire rings and half-rings the child becomes familiarized with the properties of the curved line; for, after having placed two, three or more rings or half-rings in the different positions they can take toward each other, the child can so combine them as to produce richly varied forms of beauty and symmetry; and although forms of life are much more limited than those made with the little sticks of the former Gift, still the ingenuity of the child, which has already been developed and trained by practice in the other Gifts and Occupations, aided by the ever-ready imagination, will lead the child to make some pretty imitations of fruit, flowers and other objects it sees around. — The arranging of these curved lines over the square net-work on the table also shows the relation of the circle to the square. This must prove of service to the child later on, when learning to draw curved lines and circles.

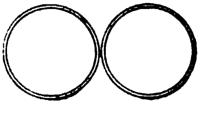
How are the exercises with the rings further carried out?

21.



After one ring has been considered, *two rings* are given and arranged touching each other in the various directions; for instance: "up and down," (Fig. 21) as the children would say, representing the figure 8; or stretched out from right to left (Fig. 22);

22.



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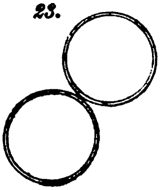
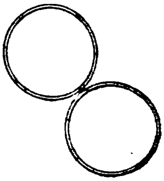


or in a slanting direction (Figs. 23 and 24).

24.



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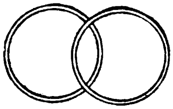
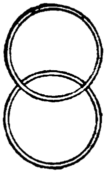


The two rings may also overlap each other in various ways and directions (Figs. 25 and 26).

26.



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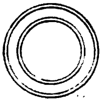
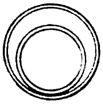


Instead of giving two rings of equal size, a large ring and a smaller one may be given, and the *within* each other as well as the parallel lines may be seen (Fig. 27).

28.



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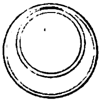

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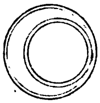

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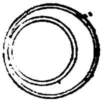
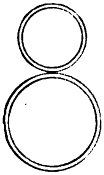


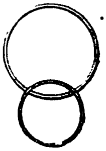
The inner ring may touch the outer one *within* in various places (Figs. 28 to 31).

32.



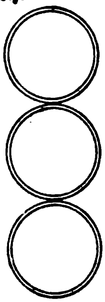
The smaller ring may also touch the larger one *outside* (Fig. 32.). When the small ring is *above*, the child will probably call the figure a bottle.

33.



The two rings may also overlap each other, which form may probably be termed a balloon (Fig. 33).

34.



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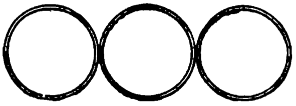
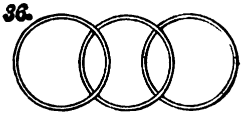


After such exercises, *three rings* of equal size (large) should be given. They may first be laid so as to touch each other, stretching up and down (Fig. 34); or from right to left (Fig. 35); or in a slanting direction.

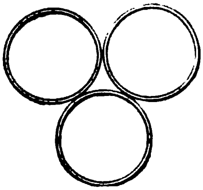
36.



The rings can also overlap each other, representing a chain (Fig. 36).

Or they can be arranged to enclose an even, three-sided space representing a triangular form. This may be arranged in four different positions (Figs. 37 to 40).

37.



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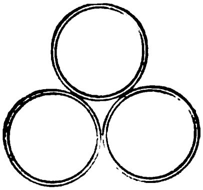

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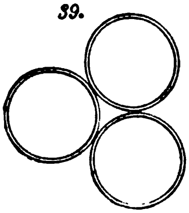

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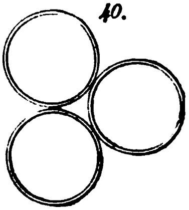
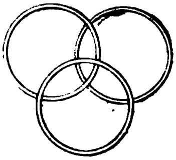
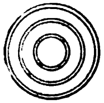


41.



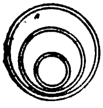
The rings may, in like manner arranged, overlap each other, giving a very pretty three-sided rosette (Fig. 41).

42.



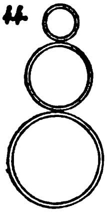
Instead of giving three rings of equal size, three rings of the three different sizes may be given and placed within each other, with their lines parallel (Fig. 42).

43.



Or both inner rings can be so moved as to touch, within the side of the large outer circle, in various places (Fig. 43).

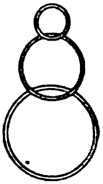
44.



Or they can touch each other's sides (Fig. 44).

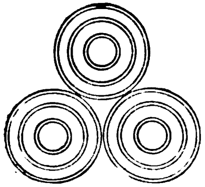
They may also overlap each other (Fig. 45).

45.



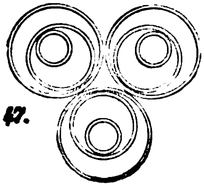
At this point a progressive step may be made by giving the child *three whole rings of each kind*, then arranging the three rings of the largest size so that they enclose an even, three-sided space; this form serves for a starting-point or central form. The rings next in size are now placed, for instance, one in the middle of each larger ring, and within these the smallest rings are placed, — and the child has gained a perfectly symmetrical three-sided form — a pretty form — *a form of beauty*, as such forms are generally called in the kindergarten (Fig. 46).

46.

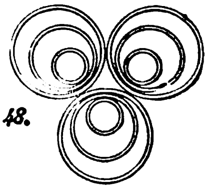


And now — when this form has been arranged — the play can begin. At first the children will have to be directed, but soon they will take hold of the simple rule how to manipulate the rings properly, and innumerable forms result from the changes made; for instance:

47.



48.

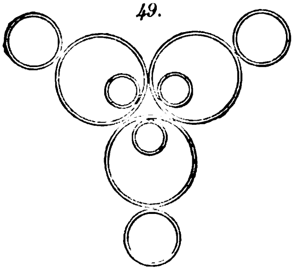


Move the three second-size rings to the centre (Fig. 47).

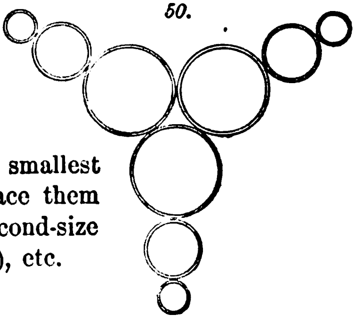
Move the smallest rings also to the centre (Fig. 48).

Place the second-size rings outside the large rings (Fig. 49).

49.



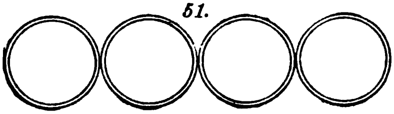
50.



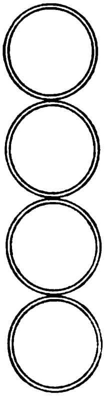
Take the smallest rings and place them outside the second-size rings (Fig. 50), etc.

For a new exercise the child is given *four whole large rings.* These again may first be placed touching at the sides from right to left (Fig. 51); up and down (Fig. 52); or in a slanting direction (Fig. 53).

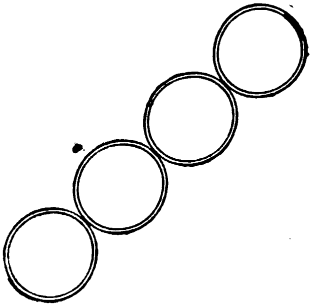
51.



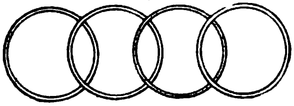
52.



53.



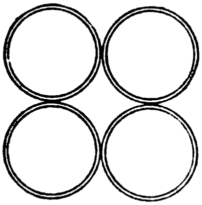
54.



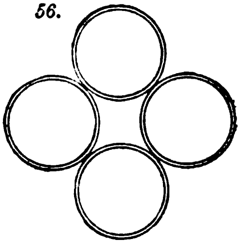
These four rings may also overlap each other more or less (Fig. 54).

They may also be placed one upon the other.

55.

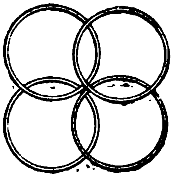


56.

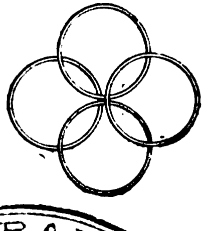


Next, the four rings may be placed square (Fig. 55); or diamondwise (Fig. 56), i. e. so that they enclose a space of an even-sided, square-like form. It will be remarked that when the form itself is square, its central space is diamond-shaped before the child, and *vice versa.*

57.



58.



The rings in these forms may overlap each other, and pretty little rosettes are the result (Figs. 57 and 58).

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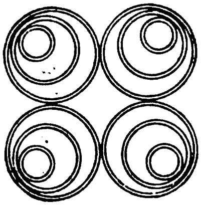
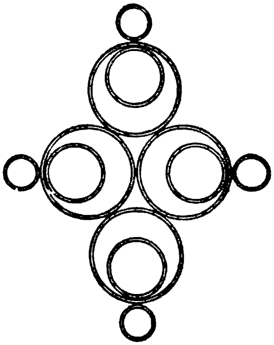
Four rings each of the second and smallest sizes may now be added, and again the child sets playfully to work to change one form into another, as was done with Figures 47 to 50.

59.

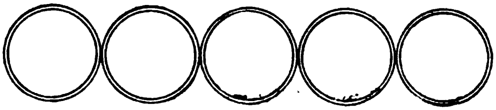


These forms are strictly symmetrical, because their opposite sides are always kept alike(Figs. 59 and 60).

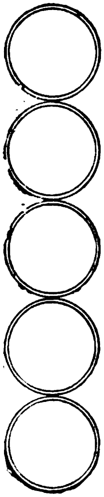
60.



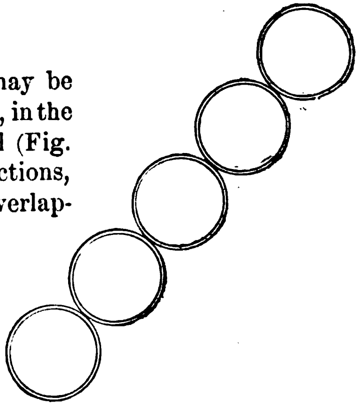
61.



62.

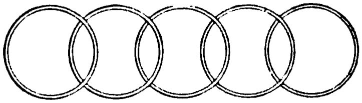


63.

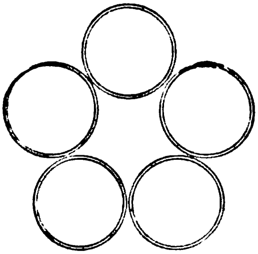


Then *five large rings* may be given, and arranged as before, in the horizontal (Fig. 61), vertical (Fig. 62) and slanting (Fig. 63) directions, touching at the side, and overlapping (Fig. 64) each other.

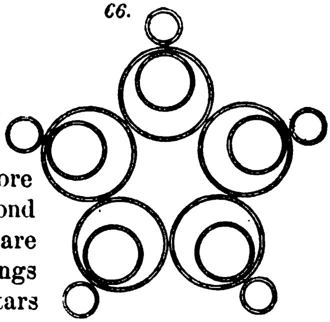
64.



65.



66.

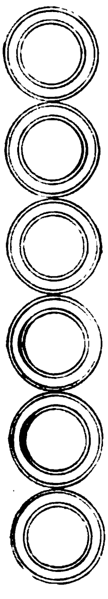


Then these five rings may be so arranged as to enclose an even five-sided space (Fig. 65),

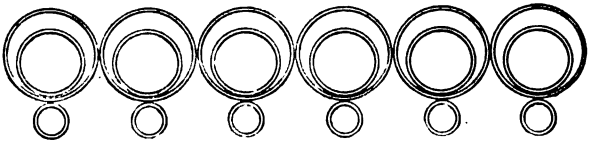
after which five more rings each of the second and smallest sizes are added, and the rings are shifted about, making very pretty stars and rosettes (Fig. 66).

The next exercise is made with *six rings* in the different directions and relations, as carried out with three, four and five rings; and it may prove a profitable additional change to give at once six more rings of the second and third sizes for these exercises, and while arranging them in the different directions, to beautify them with the smaller rings, and thus make pretty borders (Figs. 67 and 68).

67.



68.



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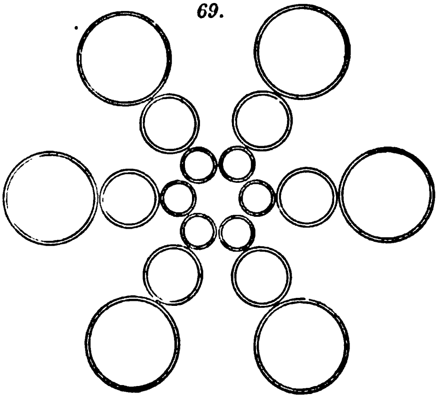


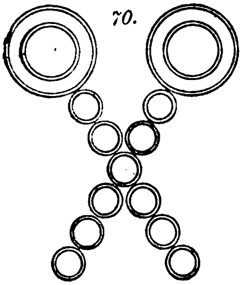
Then an even-sided space may be enclosed, for instance, reversing the order and commencing with the six smallest rings, adding the others outside properly (Fig. 69), and then proceeding to make changes with the rings.

More rings may be added, and thus quite large, symmetrical forms may easily be made.

The central form can thus be made with seven, eight, nine or ten circles, although six rings seem, on the average, to be the proper number for children in the kindergarten.

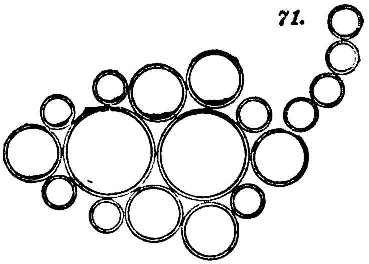
These rosettes or stars are, as it were, forms of beauty, forms of knowledge, and forms of life, all at once; for, being made of curved lines, and symmetrically, they are *forms of beauty; forms of knowledge* are seen in the different spaces as well as in the relation of the circles to each other; and such a form represents a *form of life* as seen in the stained glass windows of churches. Other forms of life are attempted by the children, although the whole rings prove poor material for this; but *if* a child wishes to make forms of life, it should be allowed to do so. Such attempts would result, for instance, in the following forms:

70.



a pair of scissors (Fig. 70);

71.



a bunch of grapes, etc. (Fig. 71).

How are the exercises with the half or semi-circles carried on?

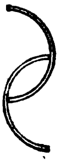
If merely looking at that which is beautiful, will impress on the minds of grown persons, a fuller appreciation of that which is good and true, then the influence on the plastic mind of the child must be still greater and more enduring. Showing to young children objects of art beyond their comprehension, will not develop this sense so much, as will teaching them the requisites of beauty, namely: order, cleanliness, simplicity, and harmony of form.

The child receives the curved line as a means to represent symmetrical or ornamental forms, i. e. forms of beauty. One of the chief points to be observed is, not to give the child too many rings or half-rings at first, as this would merely tend to confuse; but by degrees the number of rings and sizes should be increased.

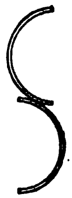
It matters little whether the child begins with the whole or half-rings; for *two half-rings* of the same size will make a whole ring; and, besides, a child who has hitherto been carefully trained, will be pleased with the changes which the half-rings allow; whereas the whole rings are rather too uniform to admit of many changes and to manipulate in many ways. Still, it is *advisable* to give only whole rings, at first, to children who have neither had the kindergarten training in the nursery, nor early in the kindergarten.

By means of two half-circles opposites and intermediates must again be found, for instance: form a circle with two half-circles (Fig. 20), but so that the ends meet above and below; take the left half-circle and place it — without changing its position — on the right side of the other half-circle, and the two half-circles will be found to touch each other in the curve, producing a form similar to the letter X (Fig. 14), and which form is the opposite of the half-circles as first joined. Two intermediates are gained by moving the left half-circle of Fig. 20 half-way down the diameter of the circle, and then pushing it gently toward the right half-circle, so that the upper end of the left half-circle touches the middle of the right half-circle, and the lower end of the right half-circle touches the middle of the left half-circle (Fig. 72).

72.



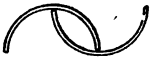
73.



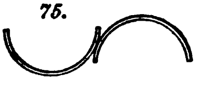
The other intermediates we find by starting with Fig. 14, and moving its left (right) half-circle so far downward until its upper side (not its end) touches the lower side of the right half-circle (Fig. 73).

These examples show that the circle has no angle, but that its opposite (Fig. 14) and their intermediate forms (Figs. 72 and 73) have angles.

74.



75.



Of course, these exercises can also be carried out by placing the half-rings so that their ends are on the right and left sides (Figs. 19, 74, 13 and 75).

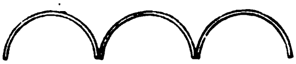
The two half-circles may also be so placed, side by side, as to form two curves upward (Fig. 5); or curves downward (Fig. 6); or with curves to the right (Fig. 7); or curves to the left (Fig. 8), number 7 producing the figure 3.

Again, changes may be made by reversing one of these half-rings and joining one of its ends to one of the ends of the other half-ring. (Figs. 9 to 12).

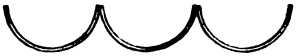
It should be understood that *no one set* of forms is to be constantly followed; for if the kindergartner be a true one, she will guide the children in such a manner that they will find their own forms, in merely following out the simple rule of the opposites and their intermediates.

Next, *three half-rings* may be so arranged, side by side, that they curve upward, like arches (Fig. 76), or downward, like a trimming (Fig. 77); and comparison may be made with similar curves in surrounding objects.

76.

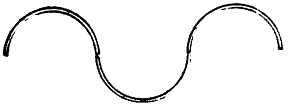


77.

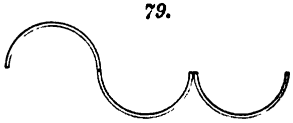


When the three half-circles are curved upward (Fig. 76), let the middle one be turned downward (Fig. 78), or one of the end ones (Fig. 79); and when the half-circles are all turned downward (Fig. 77), let the middle one be turned upward (Fig. 80), or one of the end ones (Fig. 81).

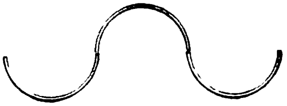
78.



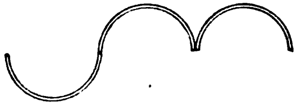
79.



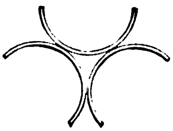
80.



81.



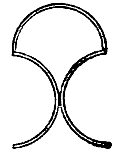
82.



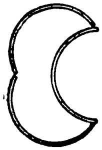
The three half-circles may be turned with their curves toward each other, enclosing a three-sided space (Fig. 82).

Invert the upper half-circle so that its curve is turned away from you, and its ends touch the two upper ends of the other two half-circles (Fig. 83).

83.



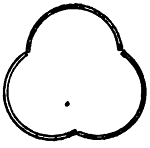
84.



Invert one of the other two half-circles also, so that all three half-circles touch at their ends (Fig. 84).

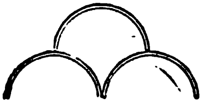
Lastly, invert the third half-circle and we have a pretty good representation of a leaf without a stalk (Fig. 85).

85.

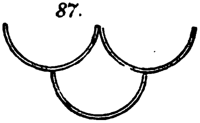


In this manner many other forms may be found, — for instance:

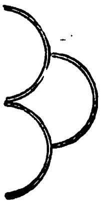
86.



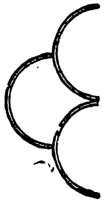
87.



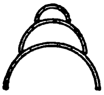
88.



89.



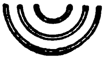
90.



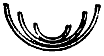
The number of forms increases, of course, as soon as the smaller half-circles are added. For instance: Place the half-circles outside each other in various positions (Fig. 90), touching each other.

Place the half-circles within each other, at even distances apart, in various positions; for instance: Fig. 91.

91.



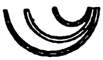
92.



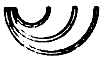
Move the half-circles of the last form close up to each other, so that they touch in the curve (Fig. 92).

Let the inner half-circles all touch at one end, within each other (Fig. 93). Repeat this form in other positions (Figs. 94 to 96).

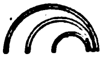
93.



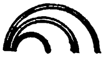
94.



95.

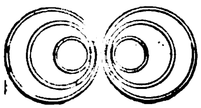


96.

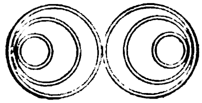


Join these last four forms so as to form of them whole figures, viz:

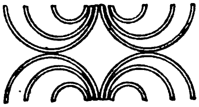
97.



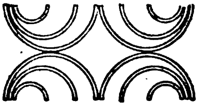
98.



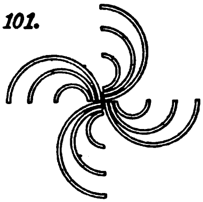
99.



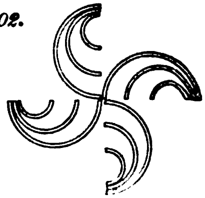
100.



101.



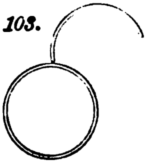
102.



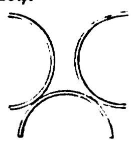
etc., etc. Several of these forms — that is, several of one kind — can be joined into *one* form or "plain pattern," and two or more children can join in this work.

The child will voluntarily try to make a few forms of life, and may thus represent — a cherry (Fig. 103); a vase (Fig. 104); a fruit-dish Fig. 105); a rosebud (Fig. 106), etc.

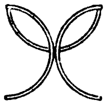
103.



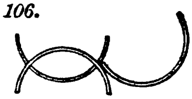
104.



105

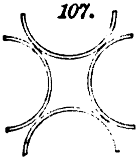


106.



For the next exercise *four half-rings* are used.

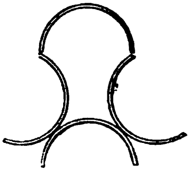
107.



All four half-circles are placed with their curves facing and touching each other, thus enclosing a square-like space (Fig. 107).

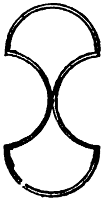
Invert the upper half-circle (Fig. 108).

108.

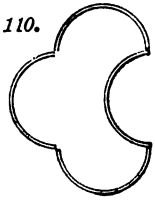


Do the same successively with the lower, right and left half-circles (Figs. 109 to 111).

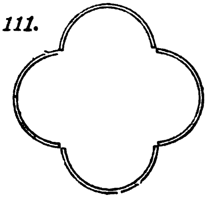
109.



110.

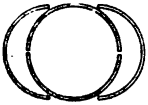


111.



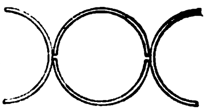
Next, move the upper and lower half-circles of the last form toward each other until they touch and form a circle, and move the other two half-circles close up to the circle; this form the child's ever-ready imagination will probably liken to a tomato (Fig. 112).

112.



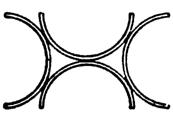
Invert the right and left half-circles (Fig. 113).

113.



Do the same with the two half-circles that form the circle, and we have the same form again from which we started (Fig. 107).

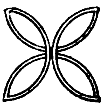
114.



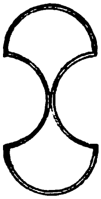
Now move the upper and lower half-circles again toward each other until they meet in the middle (Fig. 114).

Do the same with the right and left half-circles, and a pretty star of four rays is the result (Fig. 115).

115.

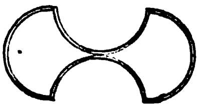


116.



Invert the upper and lower — or the right and left — half-circles again (Figs. 116 and 117).

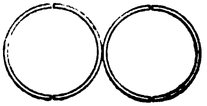
117.



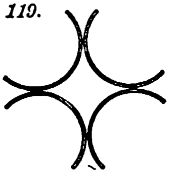
Do the same with the remaining two, and Fig. 111, the opposite of the first Figure (107) of this series, is the result.

Also two whole circles can be made with the four half-circles (Fig. 118).

118.

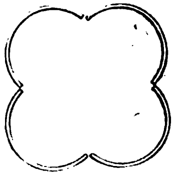


119.



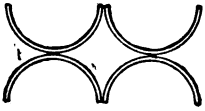
The four half-circles can also take the positions toward each other, which are known as the limbs a, b, c, d, in the *Drawing Series of the Kindergarten*, forming with them the first Figure of that Series (Fig. 119).

120.



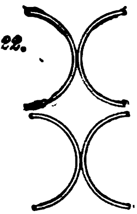
The opposite of this is easily found by the child, by merely inverting the half-circles (Fig. 120).

121.



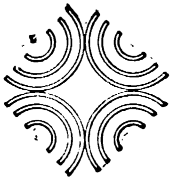
The two intermediates are made by dividing these two figures so that the lower half of the forms 119 and 120 stands above and the upper half stands below (Fig. 121 and 122); or the same result may be attained by exchanging the right and left sides.

122.

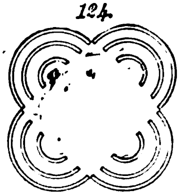


This may be even more satisfactorily illustrated by adding the two smaller-sized half-rings. (Figs. 123 to 126.)

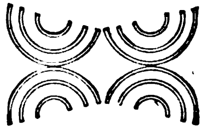
123.



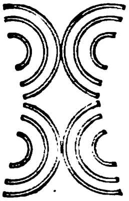
124.



125.

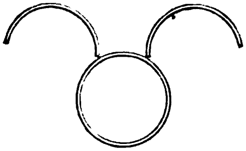


126.

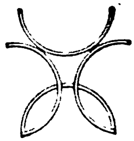


A few forms of life may here follow, as made by the children:

127.



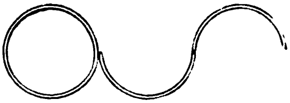
128.



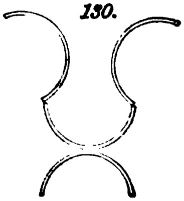
an animal's head with horns (Fig. 127);

a flower pot (Fig. 128);

129.



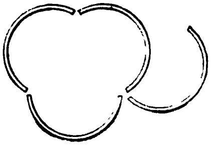
130.



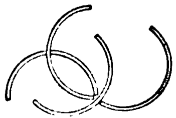
a cherry (Fig. 129);

a vase (Fig. 130);

131.



132.



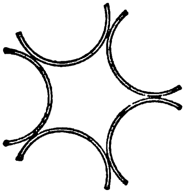
a clover leaf (Fig. 131);

a flower (Fig. 132), etc.

With every additional half-circle the preliminary exercises, as pointed out with the exercises for two, three and four half-circles, may be done again. The child should always be led to find out, how many whole circles it can make with the given number of half-circles. In order to make these exercises the more interesting, the same number of the smaller-sized half-circles may be given in addition — or even instead.

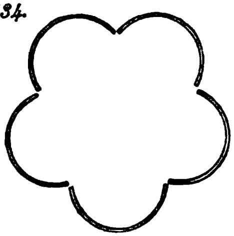
Forms made with *five half-circles* are only few in number.

133.



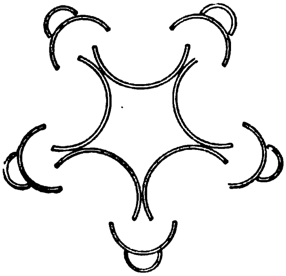
Five half-circles may first be turned with their curves toward each other (Fig. 133), and then the half-circles may be inverted (Fig. 134).

134.

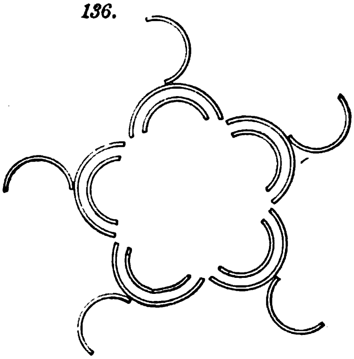


These two figures may be used as central forms or starting-points, for a rosette or ornamental form, which again can be changed into many other rosettes, though it should always remain *five sided,* as its original was (Figs. 135 and 136).

135.

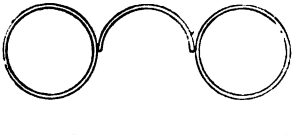


136.



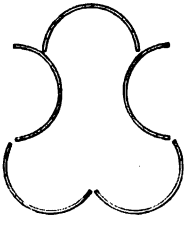
Forms of life made with *five half-circles.*

137.



A great source of mirth is created by making "grandpapa's spectacles" (Fig. 137).

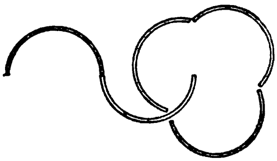
138.



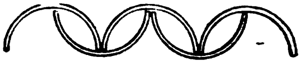
A bottle or vase can be made (Fig. 138);

a leaf (Fig. 139), etc.

139.

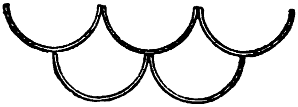


140.

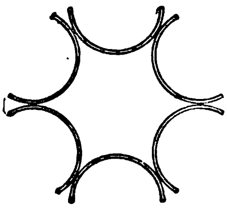


Pretty borders may be made (Figs. 140 and 141).

141.



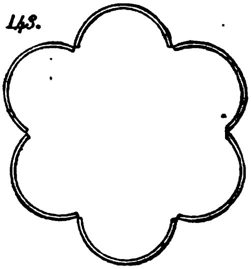
142.



With *six half-circles* make a six-rayed star by turning the curves of the half-circles to the centre (Fig. 142).

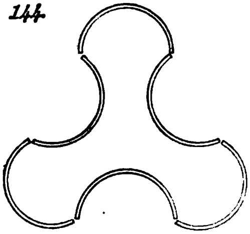
The opposite of the last form is made by inverting the half-circles (Fig. 143).

143.



This form may be pronounced by some of the children to look very much like a "cooky."

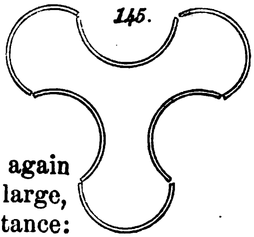
144.



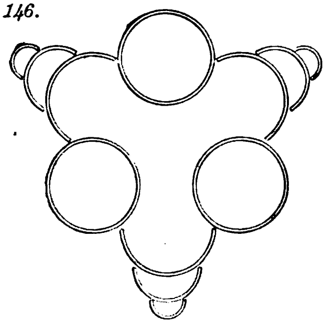
Invert, alternately, the half-rings of the latter form, and the two intermediates are produced (Figs. 144 and 145).

These four forms may again serve as starting-points for a large, six-sided rosette. For instance: Begin with Fig. 143 (Fig. 147), or with Fig. 145 (Fig. 146).

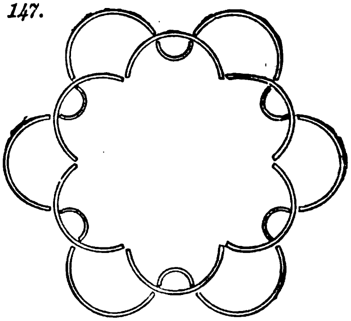
145.



146.

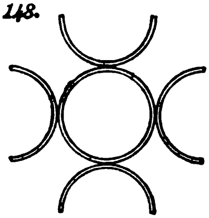


147.

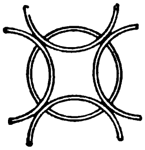


Other forms may be:

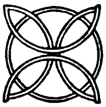
148.



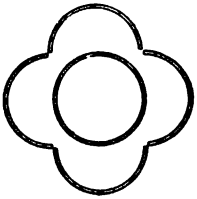
149.



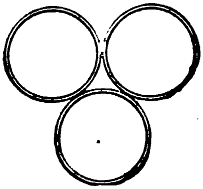
150.



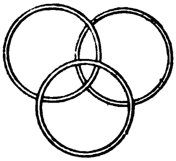
151.



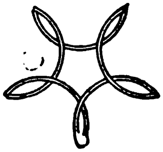
152.



153.

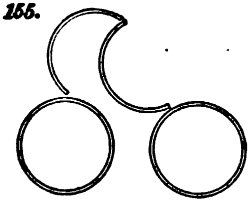


154.



Forms of life:

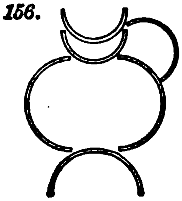
155.



two cherries (Fig. 155);

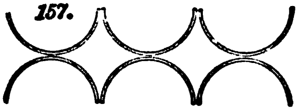
a pitcher (Fig. 156), etc.

156.

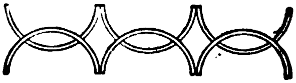


Borders:

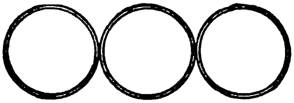
157.



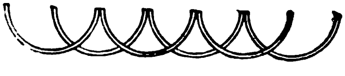
158.



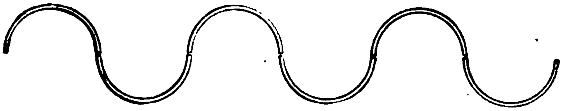
159.



160.

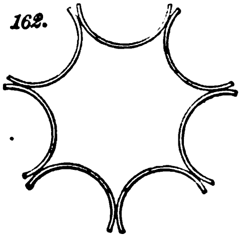


161.



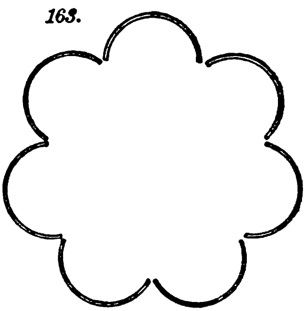
With *seven half-circles* only very few forms can be made. For instance: Turn the seven half-circles with their curves toward each other, enclosing a seven-sided space (Fig. 162).

162.



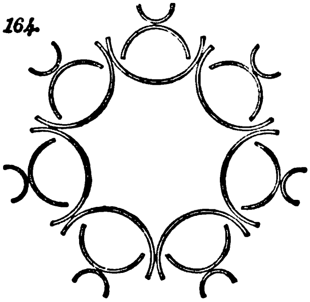
Invert the half-circles (Fig. 163).

163.



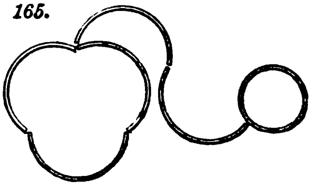
The seven-sided form is difficult for a child to make, and therefore great stress should not be laid on carrying out these forms. They can again be used for central forms in making seven-rayed stars or rosettes. For instance, Fig. 164.

164.



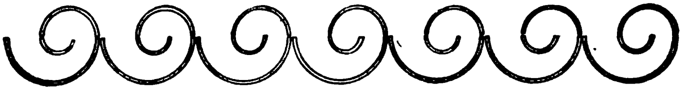
As a *form of life* the leaf with berry is a pretty example (Fig. 165).

165.

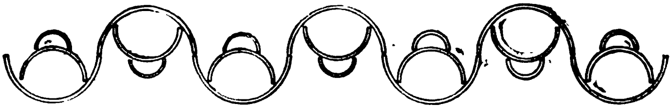


Borders can also be made; and smaller half-circles may be given in addition.

166.



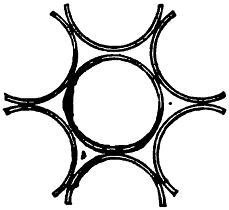
167.



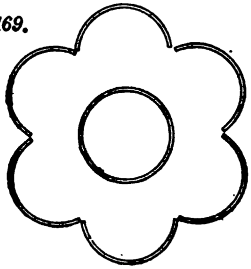
With *eight half-circles* make four whole circles — and, if thought necessary, those exercises made with four whole circles may here be repeated.

The following exercises may be carried out: by dictating, for instance, Fig. 168, and letting the child develop other forms from it, viz.:

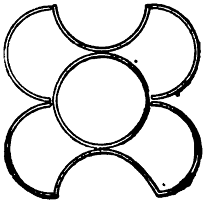
168.



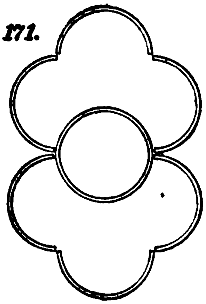
169.



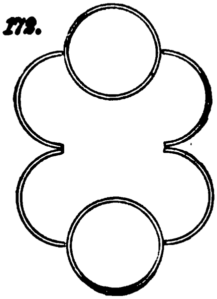
170.



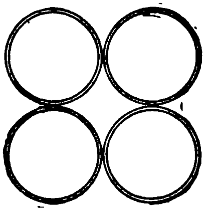
171.



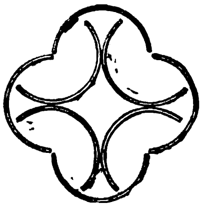
172.



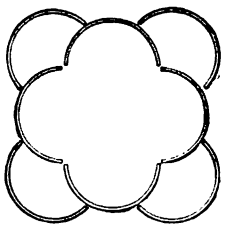
173.



174.

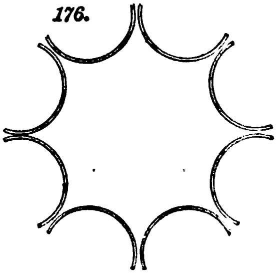


175.



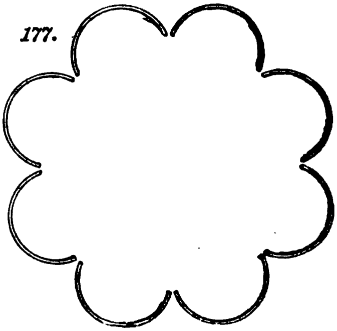
Also the eight half-circles may be turned with their curves toward each other, enclosing a regular eight-sided space (Fig. 176).

176.

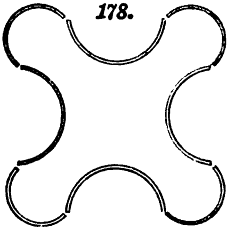


Invert the half-circles, and the opposite form is gained (Fig. 177).

177.

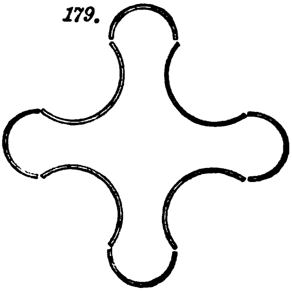


178.



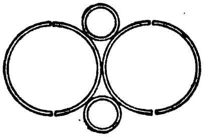
Invert the alternate half-circles and the two intermediates are gained (Figs. 178 and 179).

179.

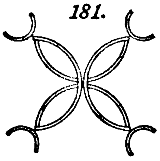


Other forms may be made of the different sizes of half-circles—for instance (Figs. 180 to 187):

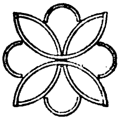
180.



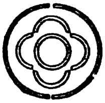
181.



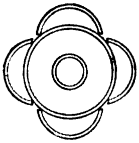
182.



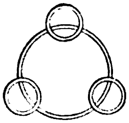
183.



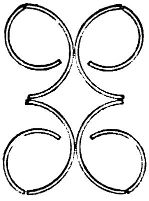
184.



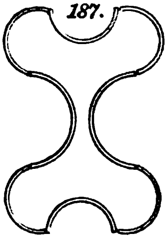
185.



186.



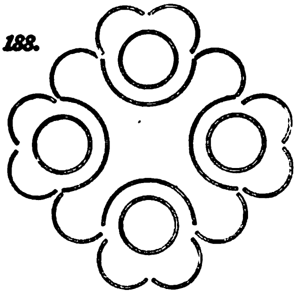
187.



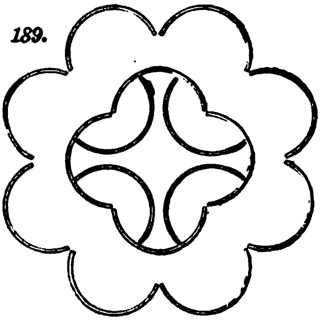
The last two forms (186 and 187) are only two-sided, yet a child will find similar ones.

All these forms may again stand for starting-points in laying out a pretty star. For instance: Commence with form 178 (Fig. 188), or with form 174 (Fig. 189).

188.

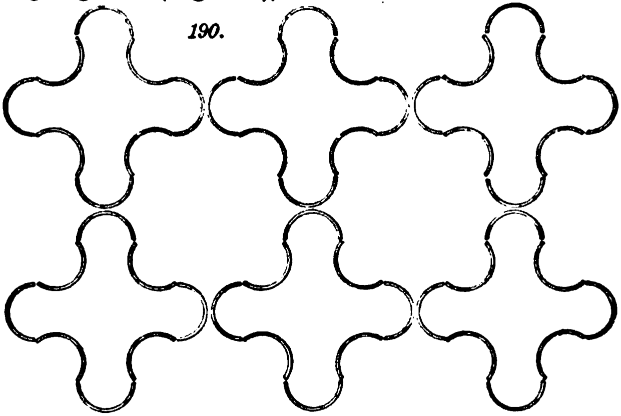


189.



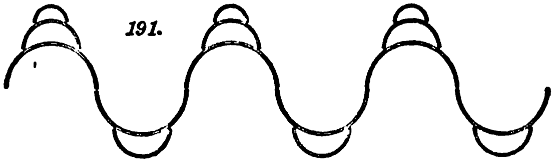
Several children may also join in making a "plain pattern," by each child making the same form, and afterward joining all these together. For instance, by repeating and joining Fig. 179 (Fig. 190), etc.

190.

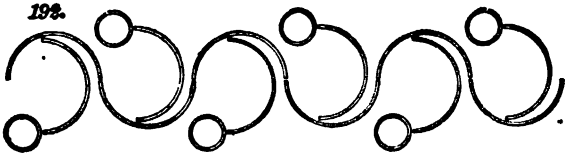


Borders may be made, for instance (Figs. 191 and 192):

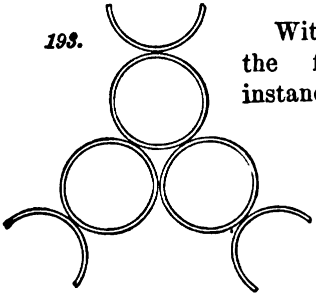
191.



192.

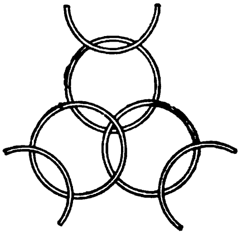


193.

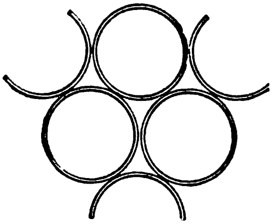


With *nine half-rings* make the following forms, for instance:

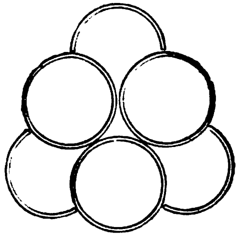
194.



195.

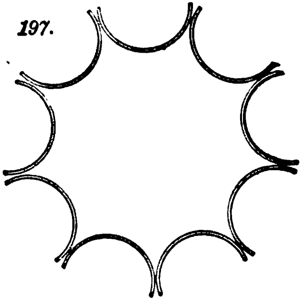


196.

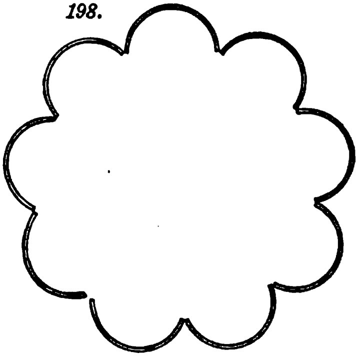


The nine half-circles may also be turned with their curves toward each other — the two opposites (Figs. 197 and 198):

197.

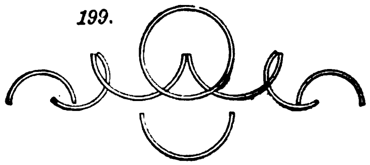


198.



Also simply ornamental — *decorative* — forms may be made. For instance (Fig. 199):

199.

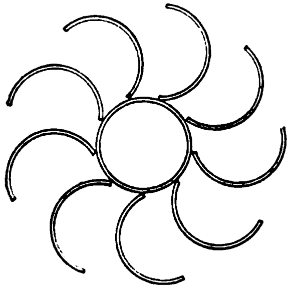


Thus the number of half-rings and rings may be increased until all are used.

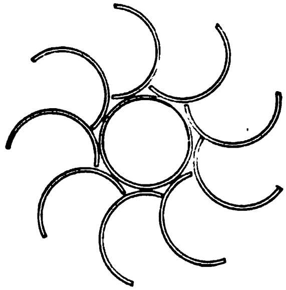
The child may always exchange the half-rings for a *whole* ring, whenever it has formed a circle with two half-rings and means to retain the circle during the form.

The following Figures will serve to show what a variety of forms can be made:

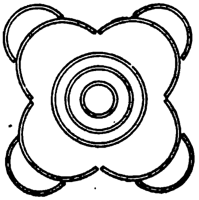
200.



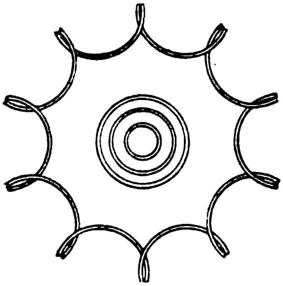
201.



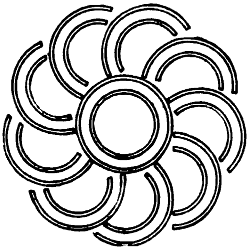
202.



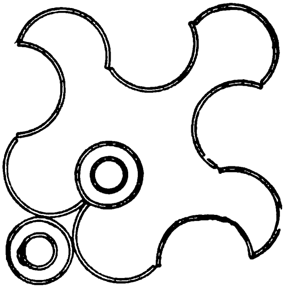
203.



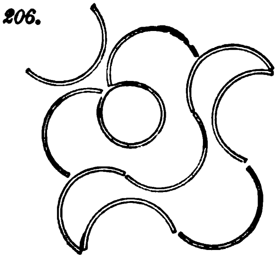
204.



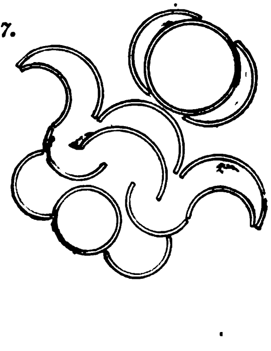
205.



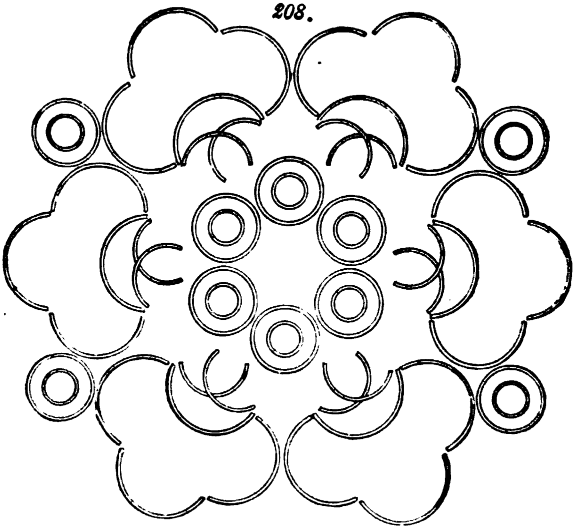
206.



207.

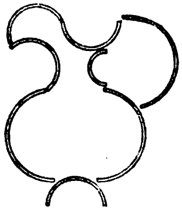


208.

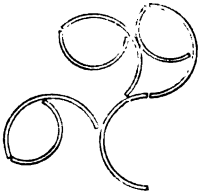


Forms of life may be:
a pitcher (Fig. 209); a branch (Fig. 210); a flower (Fig. 211);

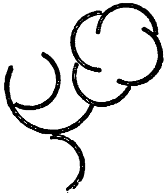
209.



210.

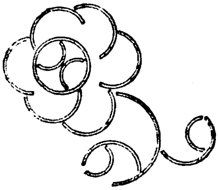


211.

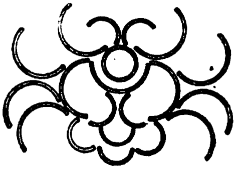


a rose (Fig. 212); a crab or spider (Fig. 213).

212.



213.



Instructive conversation may ensue when the object represented gives occasion.

Thus, in play, as it were, the child is led to find out the different relations two or more rings can stand in toward each other.

The curved line is found throughout the universe.

The forms made with the circles and half-circles are, owing to the nature of the curved line, more or less beautiful forms, and therefore the exercises with this Gift are of such importance, as they bear upon themselves the stamp of beauty. Thus the child is, by and through its work, turned toward the ideal, which is much to be desired in this very "matter-of-fact" world. And it is for this reason that Frœbel lays such a stress on the development of the sense of beauty. The child is led to make symmetrical forms also with the other Gifts and Occupations, but the curved line in itself is a better means for gaining this end, than any other material. If it be true that the adult feels elevated by merely looking at what is beautiful — that it inspires him for the good, true, noble and beautiful in action, word and deed — then must not this influence be stronger and more lasting, when exercised on the plastic mind of the child! If we do believe in the possibility of the qualities, inclinations, character, and talents of the child being developed in the two opposite directions of *good* and *evil* — which possibility is the *reason of the necessity of education* — then we should employ every means in our power to direct the innate inclinations toward that which *is* true, good, beautiful, noble and sublime — that is, *toward the ideal.* Among these means stands pre-eminent a timely and rational development *of the sense* of the beautiful. This cannot be done — though it is often attempted — by introducing to the child objects of art, which it cannot as yet comprehend and delight in, as the adult does. But the child should rather be guarded carefully, so that its sursoundings *contain* and *show* the fundamental requisites of beauty, viz.: order, cleanliness, simplicity and harmony of form, at the same time giving it assistance in the *active* representation of the beautiful in a manner adapted to the state of development of the child.

Here and there utilitarians may question the practical value of this Gift; — but is not this tendency to materialism one of the faults of our time? — this tendency to despise *all that* kind of labor or knowledge which does not promise some direct gain? Ought not that also, which cultivates the higher tastes, which appeals to the sense of the beautiful, to have an established place in a system of training for children?

The imagination is exercised in every branch of study. And what is imagination, but seeing with the mind's eye? What is mental arithmetic but that? In algebra the imagination is exercised even more than in arithmetic. A problem being given: "Let x represent the number of sheep" — how ridiculous it will sound to those scholars who have not learned to exercise the imagination! Or, how can one study geography properly, without seeing the mountain peaks covered with snow, the green pastures dotted with sheep, the rivers flowing by picturesque "castles hung in the air," or the wide prairie with its waving grass? The maps do not show these, but the teacher can so describe the country, that the child can see all this, and more, with its mind's eye. Again: How can children make good spellers, unless they can imagine the written word before them?

In the kindergarten the children are taught early to keep the mind's eye open; they not only learn what the objects presented to them *represent*, but *all the possibilities of the object;* they are taught to resolve it into parts, and to make it into something new. So, for instance, when they look at the cube, they see in it something besides the cube, — perhaps a stone, a table, etc. So also *the ring* is to them something more than the circle of iron or steel. It is safe to assume that when children thus trained grow up, *money* will suggest something more to them than barter, and that a *man* or a *woman* will be something more to their mental vision than mere externals will present.

We find in this Gift a great quantity of work, giving the child a good common-sense starting-point from which to build up a knowledge of symmetry. Children will appreciate the symmetrical, or star forms, as laid with this Gift, far more than they would a piece of art, be it a fine painting or a beautiful piece of sculpture.

The *quarter-circle* might also be introduced; it would, however, merely multiply the many forms to such an extent, that they could only be used at the expense of the other Gifts and Occupations in the kindergarten proper.*

May the embodied curved line be used together with the embodied straight line?

When introducing the rings and half-rings, they are first compared to the stick, finding a likeness as well as many points of difference between these two representations of the edge. The stick and half-ring can be placed in different positions, whereas the whole ring remains always the same.

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*In the future this will be treated more extensively, in so far as it is used in the Intermediate and Elementary Classes.

The younger the children, the less inclined they are to make *abstract forms;* they seek and try to find everywhere *the concrete* — that which stands in close connection with life. Thus the preference of children for making *forms of life* can be accounted for.

While the rings are little adapted to be used for representing *forms of life*, observation in the kindergarten has shown that also in this direction the child can make good use of the circles, especially if sticks are given together with the rings.

And here again, forms of knowledge, beauty and life can be laid, the two former being closely linked.

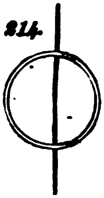
What is the order of the exercises?

Either the whole rings can be given first, conjointly with the sticks, or whole and half-rings can be given alternately, — provided, only, that instruction be given in a systematic, progressive manner. For instance:

The child may first be given a *stick and a ring*, and the first act of the child will probably be to roll the ring like a hoop, the stick representing, of course, the hoop-stick.

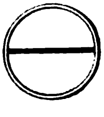
The ring and stick are then placed on the table, where the stick can take various positions, but not so the ring.

214.

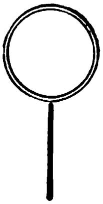


The stick may be placed in the middle upon the ring, up and down (Fig. 214), and also from right to left, dividing the ring into two equal parts (Fig. 215).

215.

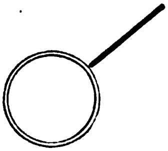


216.

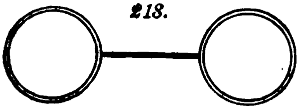


The stick may touch the ring outside with its end, which form would probably be called a fan (Fig. 216); or a cherry (Fig. 217), etc., according to the direction given to the stick.

217.



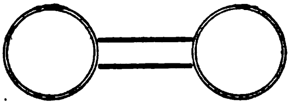
218.



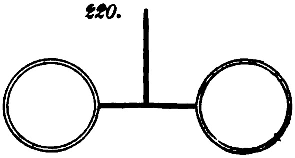
Another ring may be added, and quickly a pair of spectacles (Fig. 218) will appear, which form, however, might also, by an older boy, be called dumb-bells.

Another stick added, the child may better represent dumb-bells (Fig. 219); or a candle-stick (Fig. 220), etc.

219.

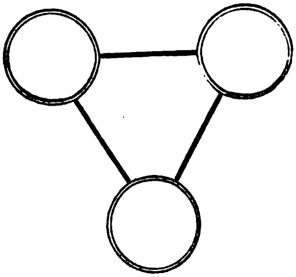


220.

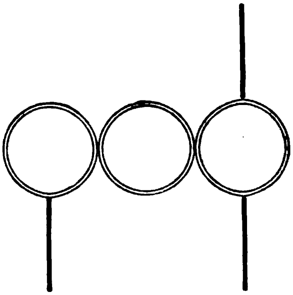


With *three sticks and three rings* a form like an equilateral triangle may be represented (Fig. 221); or a chair (Fig. 222), etc.

221.

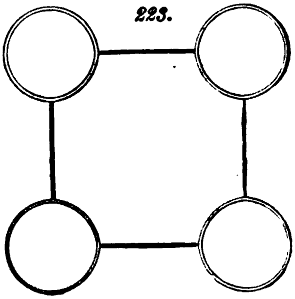


222.

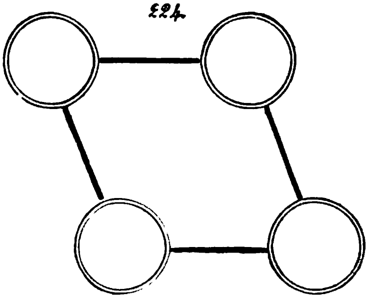


With *four sticks and four rings* a form like a square (Fig. 223) or rhomb (Fig. 224) may be represented;

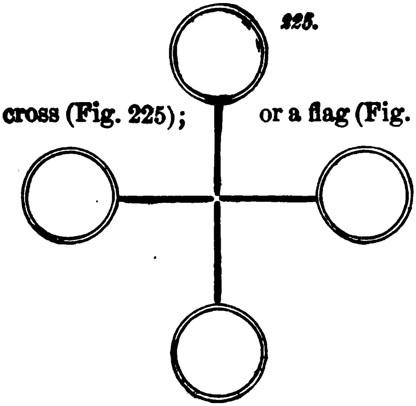
223.



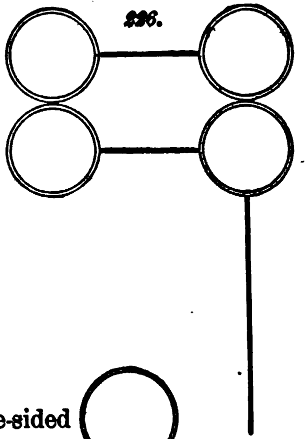
224.



or a cross (Fig. 225); or a flag (Fig. 226).

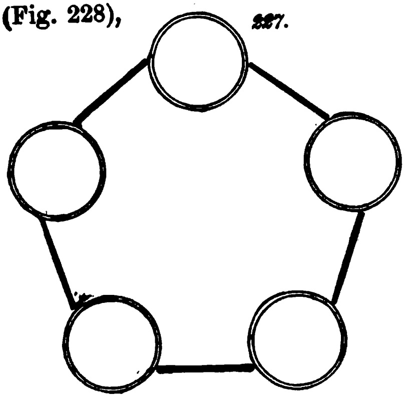


225.

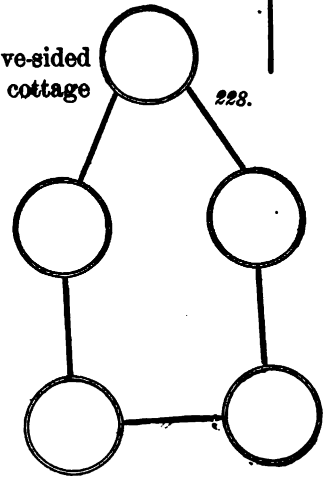


226.

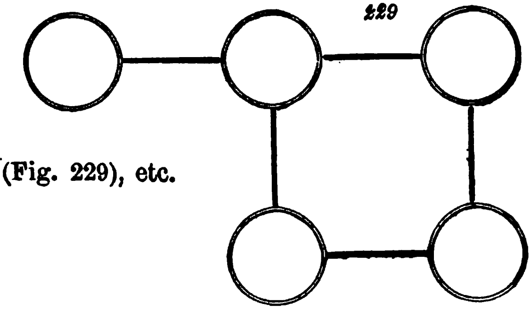
With *five sticks and five rings* a regular five-sided form may be represented (Fig. 227); also a cottage (Fig. 228), a banner (Fig. 229), etc.



227.



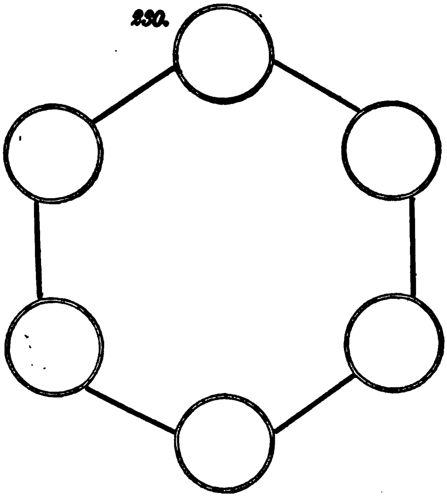
228.



229

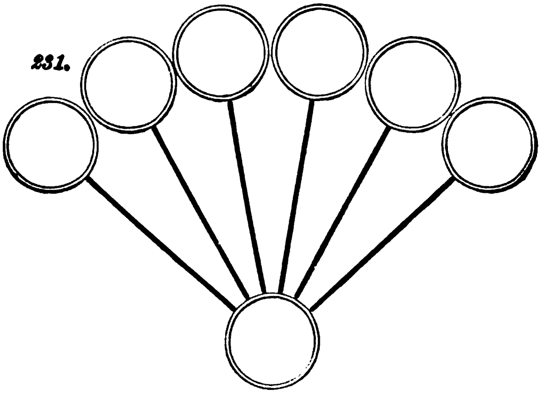
With *six sticks and six rings* a regular six-sided form may be represented (Fig. 230);

230.

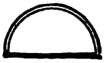


also a fan (Fig. 231), etc.

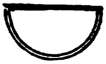
231.



232.



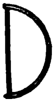
233.



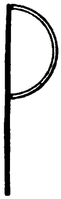
The half-circles together with the sticks open, however, the *true* field to the child for finding and representing *forms of life.* For instance: *one half-circle and one stick* can represent: a mouse trap (Fig. 232); a dish (Fig. 233);

the letter D or P (Figs. 234 and 235), according to the size of the half-circle or stick; a sickle (Fig. 236), a sun-shade (Fig. 237); an anchor (Fig. 238) etc.

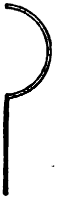
234.



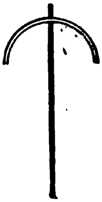
235.



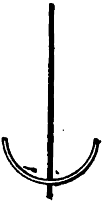
236.



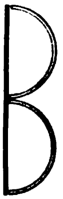
237.



238.

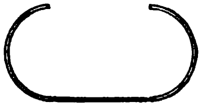


239.

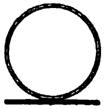


With two half-circles and one stick can be represented: the letter B (Fig. 239); a globe for fishes (Fig. 240); a pudding on a dish (Fig. 241), etc.

240.

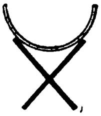


241.

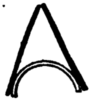


With *two sticks and one half-circle:* a fruit dish (Fig. 242); an open tent (Fig. 243); a garden hat (Fig. 244); a little boat with mast (Fig. 245); a mushroom (Fig. 246); a turnip (Fig. 247), etc.

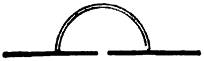
242.



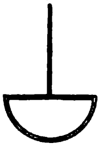
243.



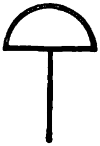
244.



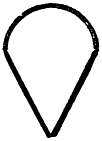
245.



246.

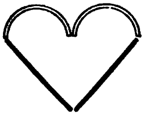


247.

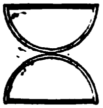


With *two half-circles and two sticks:* a heart (Fig. 248); an hour glass (Fig. 249); a crown (Fig. 250), etc.

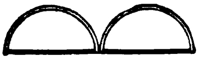
248.



249.

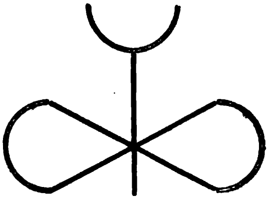


250.

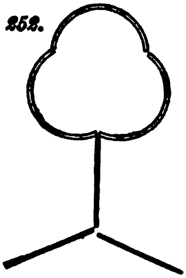


With *three half-circles and three sticks:* a moth (Fig. 251); a leaf (Fig. 252); a vase (Fig. 253), etc.

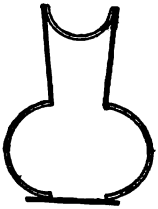
251.



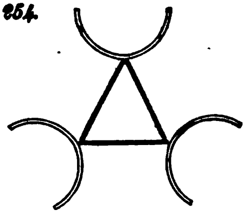
252.



253.

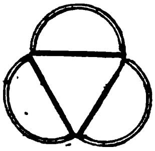


254.

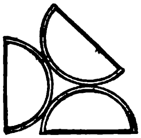


Symmetrical forms made with three half-rings and three sticks.

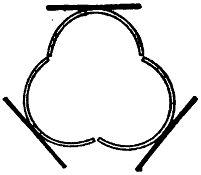
255.



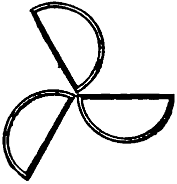
256.



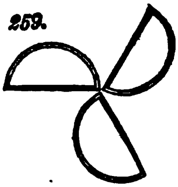
257.



258.



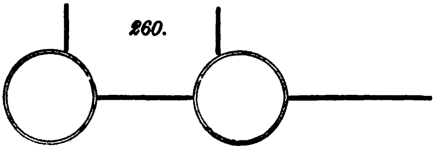
259.



The geometrical and symmetrical forms throughout may serve again as central forms for making large stars.

With *four sticks and four half-rings* may be made: a wagon (Fig. 260); a pair of scissors (Fig. 261); a pitcher (Fig. 262), etc.

260.



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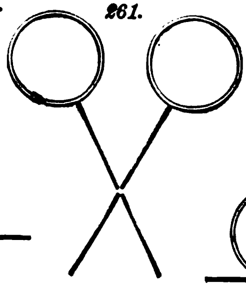

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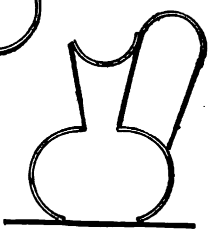

Symmetrical forms may be:

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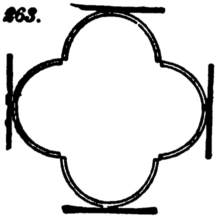

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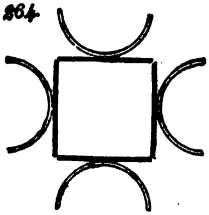

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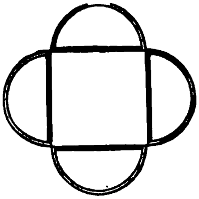

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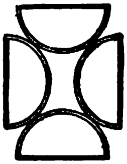
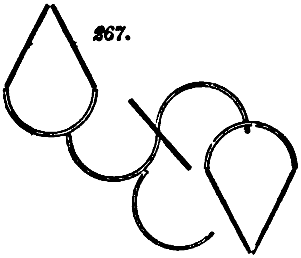


With *five half-rings and five sticks:* leaves on a branch (Fig. 267); a bird-cage (Fig. 268).

267.



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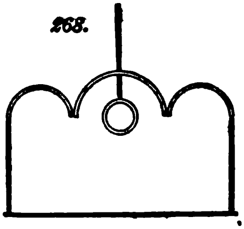

Symmetrical forms are:

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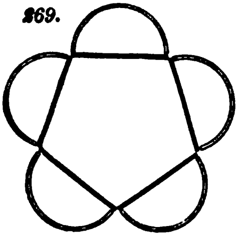

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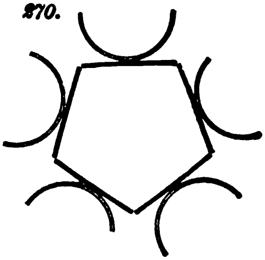

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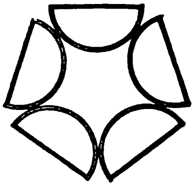

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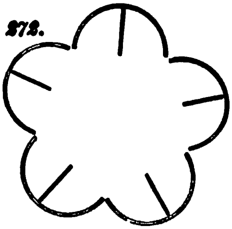
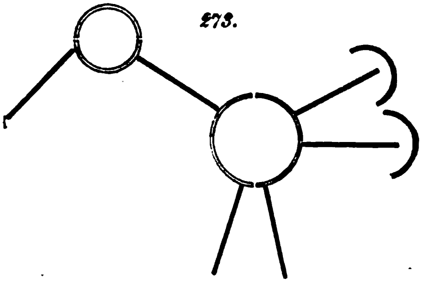


With *six half-rings and six sticks:* a bird (Fig. 273).

273.



Although animals cannot well be represented, the child will naturally try to do so, just as it would try to draw them on a slate.

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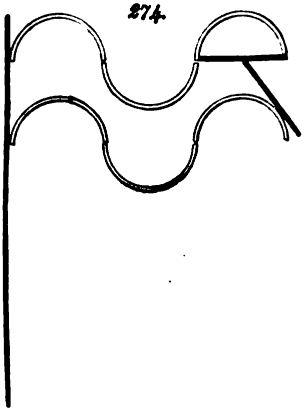
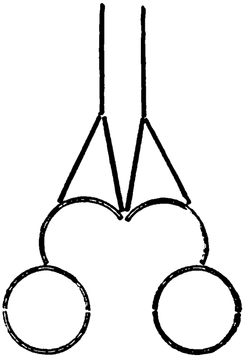


There can further be made: a flag (Fig. 274); a pair of scissors (Fig. 275), etc.

275.



Symmetrical forms are.

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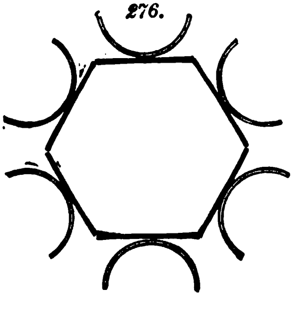

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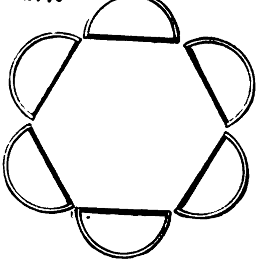

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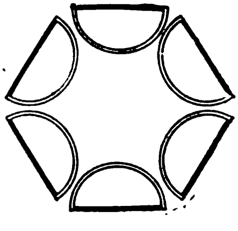

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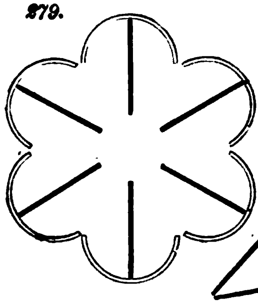

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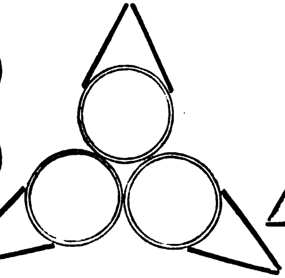

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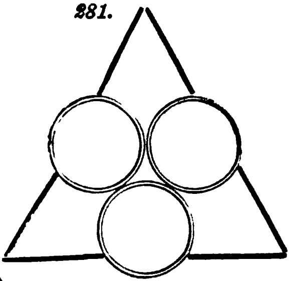
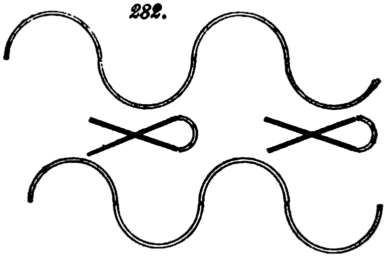


Thus the child will represent various forms, will reproduce by means of the circles, half-circles and sticks impressions of objects it has received, i. e. *make the internal external.*

How the child will delight in representing the serpentine river with its fishes, which in the kindergarten games is so prettily represented by the children.

282.



Or the sun with his golden beams shining down upon the little house where little Red Ridinghood's mother lived! The children will not forget to make the geese that waddle down to the pond, and the tree that has lost its leaves because it is autumn.

The various forms may be copied on the slate. The straight lines the child will be able to draw on the square network marked on the slate; but as it would be too difficult for the child to make off-hand a correct representation of the circular line with the pencil, it may suffice at first for the child to make an outline of the circle or half-circle by placing these for patterns on the slate. At all events, whatever is done with the rings, half-rings and sticks, the kindergartner should always beware of a "too much," and should bear in mind that the more simplicity and order prevails, the better will be the result gained.

THE TWELFTH GIFT.

THE THREAD-GAME.

To the system of Frœbel's Gifts and Occupations belong also the different Thread-Games, although Frœbel says very little of them in his writings. These games are entertaining, and necessary to his Gifts — that is, if we wish to develop according to his system.

The cube represents the *body*, the tablets the *plane*, and the stick, ring, and thread represent the *line*.

The *thread*, of which the ends are joined, illustrates the circle as a line equally distant everywhere from its centre. The various forms, therefore, are developed from the circle, and have always the same circumference. The forms are quite manifold. One form here, as in the previous Gifts, always grows out of the preceding one; the last form, therefore, was brought about and prepared by the former.

In the Thread-Game the following has to be observed, viz.: "We find not only the opposites, but also all the intermediates produced by finding the opposites."

This Gift has also another quality in common with all the other Gifts and Occupations, viz.: that not only young children are interested by it, but also persons of maturer age.

From the previous Gifts we have already seen, that Frœbel's means of work for the little ones are all founded only on the natural occupations of children. And so it is also with the Thread-Game — a Gift representing the pliable line.

What is the Thread-Game?

The Thread-Game is simply "drawing with the given line" — the thread — instead of with the pencil.

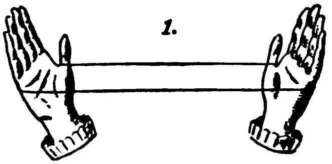
In what consists the likeness to, and the difference from, the previous Gift — the Rings?

The thread, when knotted together, as used in the Kindergarten, has, like the ring, neither beginning nor end. The difference is very apparent — the ring never changing its form, the thread being pliable; and, further, the ring being made of metal, the thread of colored cotton or wool.

Children are naturally fond of threads or cords of any kind; and in investigating the contents of a boy's pockets, one is almost always sure to discover a ball or "tangle" of string, which is regarded by its owner as an indispensable article, to be used in the manufacture of horse-reins and kites, for spinning tops, making bows, and many other things. The little girl uses it also in various games; but with her the strong cord or string is replaced by worsteds, silk, ribbons for the doll, etc.

The Thread-Game is not only an amusement, but of actual use to the child. We often see children do things that have never been taught them, but which seem intuitive. Just as young animals gambol and play, and in so doing expand their muscles and strengthen their sinews, so does a little child kick out its little legs, stretch its toes, and twist its fingers. If it did not do this, it would not grow and become strong, but would wither away and die. — Of course, the hand can be easily trained and developed, like any other part of the body, if this is commenced in the right way and at the proper time. Not only does every Gift and Occupation serve for such training of the hand, but especially is this the case with the so-called finger and hand games, which may be introduced again, together *with* the various Gifts and Occupations.

The children of various countries have a game of unknown origin and antiquity, which is played by two persons with a string of about thirty inches in length knotted together and twined twice around the hands of one player (Figs. 1 and 2),



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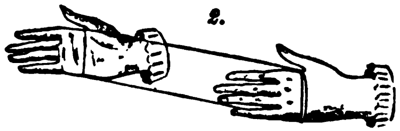
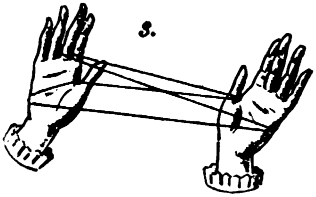


2.

the middle fingers then taking up the threads from the inner side of the hands of the player (Figs. 3 and 4).



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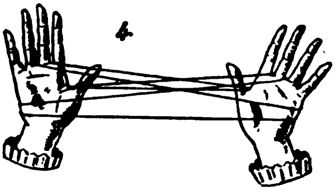
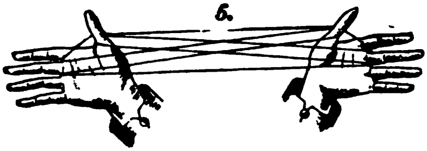


4.

Fig. 4 is to be so shifted on to the fingers of the other player, as to assume a different figure. This is done by the second player placing thumb and first or second finger on both sides where the threads cross each other, and then drawing these over the lower thread and passing thumbs and fingers from below within, and then upward, resulting in Fig. 5:



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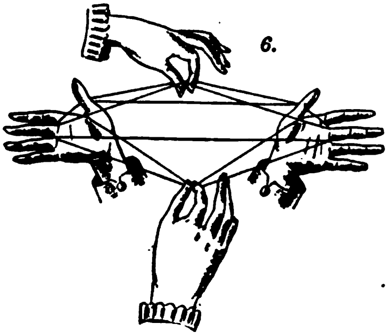
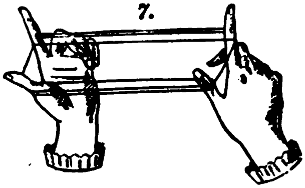


6.

Then this form is again similarly (Fig. 6) removed on to the first one's fingers, resulting in Fig. 7:

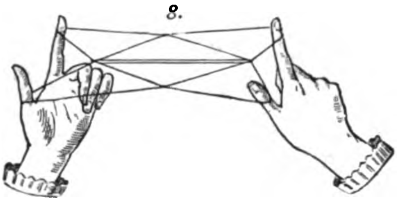


7.

For children who are awkward and clumsy with their hands, this is an excellent exercise, as it makes the muscles of the fingers supple and pliable.

This game is called "cat's cradle" in this country. Fig. 4 is the "cat's cradle;" Fig. 5 has the name of "cheese-board;" Fig. 7 is called "the water."

Thus various changes can be made (Figs. 8 and 9), until at last the "tailor's long scissors" are made, which form cannot be changed — and



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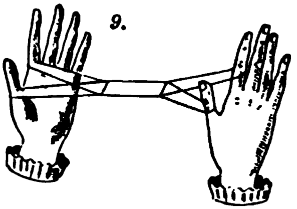
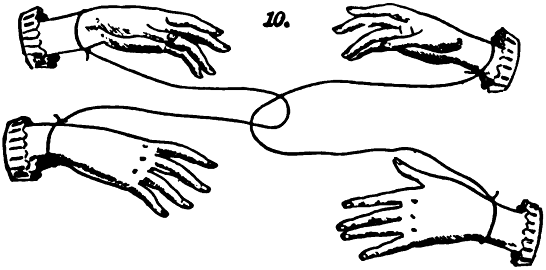


9.

the game begins anew. This game is however too difficult for young children, and is too individual to be used in the Kindergarten. There are other thread-games similar to "cat's cradle," — for instance, one called "the two prisoners," which is played by two children, with two strings. This is carried out in the following manner:

The two ends of one of the strings are loosely tied around the wrists of one of the players, who, by the way, is *not* instructed as to how this game is carried on. Then the ends of the other player's string are similarly placed around the wrists of this second player, passing the string previously between the other string and the arms of the first player (Fig. 10).



10.

Now you ask the first player, who is unacquainted with the game, to free himself without breaking the string. After various exertions he will find this to be impossible for him to do, and then the second one's turn will come. This player will take hold of the middle of the first one's string and put it from behind underneath the string that spans one of his own wrists and then slip the string over the same hand and he is free. There are other thread-games to be played by only *one* child, in which the thread of which the ends are knotted together, is wound and twisted about the fingers of *one* hand in different ways, producing various results. These may have had their cause in that children *always* must have their fingers busy. Activity is the law of childhood and of nature; without it even the smallest weed could not grow! This natural activity of children is manifested in countless ways. No person is born lazy. A child actively and correctly trained, will not only retain its natural activity and energy, but, to a certain extent, use them to the best advantage. Many things which we learned in our childhood, we may since have forgotten; though there will always be some things which we retain and remember as clearly as ever, just as if they were printed with golden letters in our memory — recalling ever so many happy hours spent in innocent amusement with those we loved. The simple amusement of the Thread-Game answers so well to the child's natural inclination to constant activity that we may often find it in the houses of the poor as well as in those of the rich.

How is the Thread-Game, as used in the Kindergarten, introduced?

Instructive conversation or remarks should always accompany whatever is given to the child. The material of each Gift or Occupation will always afford a subject for it. For instance, the worsted thread would bring up a host of pleasing associations to the child — of summer, green fields, lambs, sheep washing and shearing, spinning, etc. The children will attentively examine their own clothes, or any woolen material around them. — If a cotton thread be used, it leads our imagination at once to the "Sunny South", and we see the colored people gather the cotton contained in the capsules of the plant; we see how this is piled up in large heaps, forming by and by large bales of cotton, which are sent to the manufactories in the different countries, where it is prepared in ever so many ways for various purposes, as, for instance, for dresses, underwear, knitting-thread, etc.

Again: the *red color* of the thread, which is usually used for this game, will induce us to tell the story of the discovery of the cochineal, which yields such a brilliant red color. The color may again be compared to objects of a similar color. Next, the ends of the thread will be knotted together, and a little lesson can ensue as to *how to make a knot.* Various kinds of knots may also be of interest to the children.

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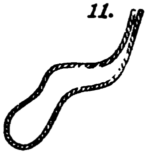
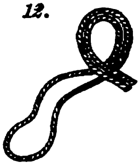


11.

Knots can be made in many ways. For instance, the simplest knot is made as follows: Hold the two ends that are to be knotted together, closely and evenly together (Fig. 11). Then form a loop with them (Fig. 12).



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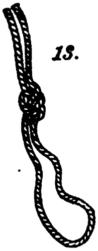
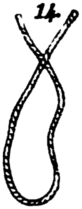


13.

Next take the short ends and draw them through the loop, pulling the ends tightly together, and the knot is made (Fig. 13).

Another knot can be made as follows: The two ends of a string are laid across each other — for instance, the one you hold in your left hand above the one you hold in your right (Fig. 14).



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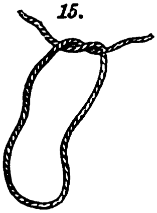
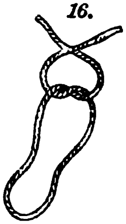


15.

Then draw the end that is uppermost under the one underneath, and turn it upwards through the loop (Fig. 15).

Then lay the left upper end again over the right upper one (Fig. 16).



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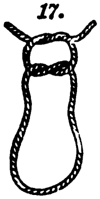
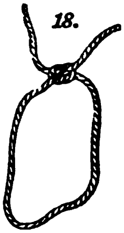


17.

The right upper end is then drawn through the space (Fig. 17), and the ends are drawn tight, and the knot is finished (Fig. 18). This knot is called a "sailor's knot."



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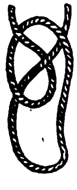
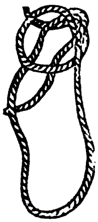


19.

For another knot, called the "weaver's knot," place the ends of the string again as in Fig. 14. Then take hold of the undermost end, about half-way down the loop, and pass it over the uppermost end and around the end to the left (Fig. 19).

20.



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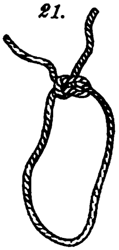


Then draw the right end over the one above it and pass it along its own length, through the loop formed by the other end (Fig.20); then grasp the ends thus doubled on themselves and draw the knot together (Fig. 21).

These knots *may* be untied with patience, although they are considered to be strong, safe knots. In connection with this the children might be told about the "Gordian knot," which would prove an attractive story for even young children, if told in a childlike manner. They may also be told — in connection with knots — about the poor weavers, and the merry sailors may also come in for their share. A story may likewise be told about the slate, which is one of the treasures of the earth, from which it has to be removed by hard labor, blasting and engine-power, and of course, picks, hammers, wedges and various other tools are needed, too. Also about the removal and preparation of the slate — which is a species of stone — many interesting facts may be given. The different uses of slate, as for tiles, mantel-pieces, slate-pencils, etc., may be mentioned. The frame of the slate offers an opportunity to speak about wood and trees. The sponge is also taken into consideration, and how we find it, leads us to the wonders of the ocean.

Facts of this kind, though always told in a simple way, will interest the child in the material before him, and besides, by making the child *speak*, its power of speech becomes more developed — for the child should always be encouraged to bring forth its little store of facts upon the subject under consideration.

Thus it may readily be seen, what an amount of general knowledge the Kindergarten child will have acquired by the time he is old enough for real study. What a pleasure it will be to teach such children, when the mind is so far developed! Both study and teaching become a delight, when the Kindergarten has done the right work.

In the Thread-Game the child has the pliable line, instead of the stiff straight and curved lines; the thread can answer the purpose of either stick or circle, having the quality of assuming the form of each.

What are the adjuncts of the thread in this game?

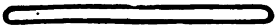
A cup of water, a slate, a pencil, and a sponge.

How is the play carried on?

A red-colored cotton or worsted thread about 18 inches long must have its ends securely and tidily fastened together and must then be saturated with water, thus growing pliable, and acquiring the property of shaping itself readily into the required forms. When taken from the water, it is placed on a damp slate which has lines forming a net-work of squares on its surface. Then with the aid of a pointed slate-pencil it may be moved about to produce forms of knowledge, forms of symmetry (or beauty) and forms of life — or of objects we see around us.

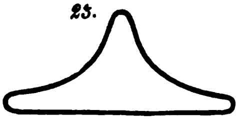
The first and easiest form the thread will assume, is gained by stretching the thread out from right to left until we have a double line, or two parallel horizontal lines before us which are joined at the ends (Fig. 22).

22.

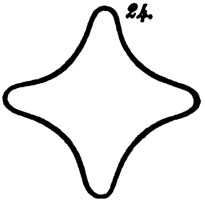


By raising the upper line (Fig. 23) from the middle upward and moving the lower one from the middle downward, or toward us, gently, and then gradually and alternately widening the form above and below, it will soon resemble a square placed corner-wise before us (Fig. 24.) The centre of this form may be found and indicated by a pencil-mark.

23.



24.



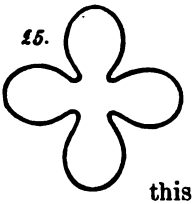
In this game, as in the ring-games, the forms of knowledge and symmetry are intimately connected.

With this little string quite a "lesson in drawing" may be given, the child being taught that it must observe closely in order to be able to give only crude outlines of even familiar objects, cultivating in this way the mind, eyes and hand.

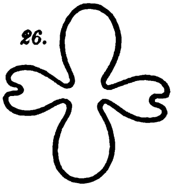
The material is so supple, that it readily obeys the slightest motions of the pencil, thus making the work fascinating. In this game, as in others, practice makes perfect. One form can easily be changed into another form by only a few motions of the pencil. — This game also offers to the child a practical illustration of two important laws, which is not found in any other of the Gifts or Occupations of the Kindergarten, namely, the law of capillary attraction, and the law of adhesion.

The red-colored thread is best to be used for this game, for it does not discolor when *wet*, and contrasts well with the dark back-ground of the slate; also, there is nothing deleterious in the dye, which cannot be said of all other colors. A white thread would soon grow soiled and dingy, and hence cannot so well be used. Therefore scarlet proves the best color to be used for this Gift.

How do we further proceed?



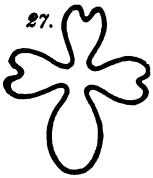
25.



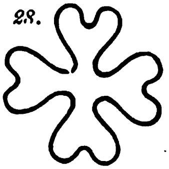
26.

When the soaked thread has been arranged on the slate as a square corner-wise before the child, the middles of the sides are drawn toward the centre (Fig. 25), which results in a cross.

Next, the outer right and left parts of this form are indented slightly (Fig. 26).



27.

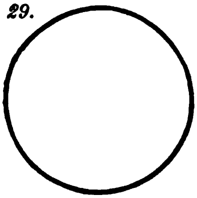


28.

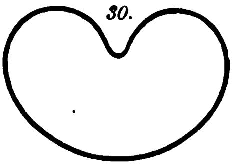
Then the same is done to the upper part (Fig. 27).

And finally also to the lower or front part of the form, and a symmetrical star, or four petaled flower is produced (Fig. 28).

Next, we arrange the flexible thread to form a circle, or ring, as the child may term it (Fig. 29).



29.

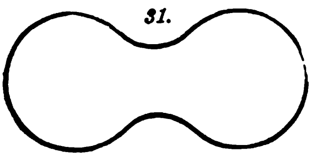


30.

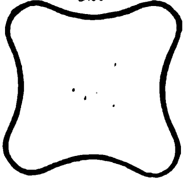
All operations are carried out by the rule of opposites.

Thus, the top of the circle may be gently moved half-way to the centre, and a form like a bean or kidney appears (Fig. 30).

Then the lower part is similarly pushed upward, and a form resembling the "lady's finger" is gained (Fig. 31).

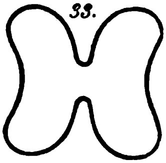


31.



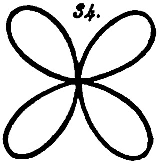
32.

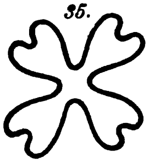
Next, the right and left sides are similarly moved in, and a "silk-winder" for Mamma is the result (Fig. 32).


33.

For the next form the upper and lower indentations are drawn still closer to the middle (Fig. 33).

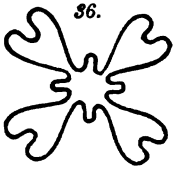
Similarly the right and left sides, and four loops appear (Fig. 34).


34.


35.

These loops may be slightly indented (Fig. 35).

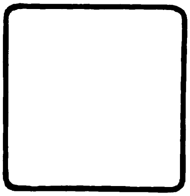
And the central indentations may be partly drawn out (Fig. 36), each change transforming the design into some new form of symmetry.


36.

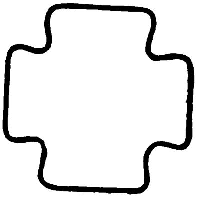
The ground form, as point of departure, may thus be either a circle, a square, an oblong or oval, or a polygonal form; but whatever evolutions may be thereafter wrought, the original form should be so far observed as to retain the same number of sides in the subsequent changes.

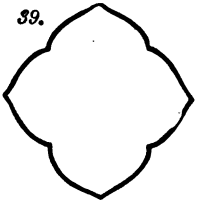
From the simple to the complex is the rule to be followed here, as in everything else in the Kindergarten.

The square may next be arranged *square* before the child. By the help of the square net-work of the slate this may easily be done (Fig. 37). The central point may also be found in this, as in in all the following geometrical forms.


37.

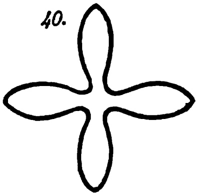
Then the corners of the square are drawn toward the middle (Fig. 38).


38.

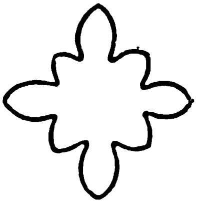

39.

The sides of this form are slightly drawn out to a point (Fig. 39).

Then draw the first indentations quite to the middle (Fig. 40).


40.

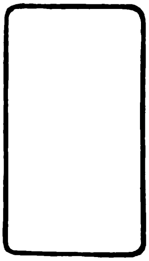
41.



The same indentations are then drawn out again (Fig. 41), etc.

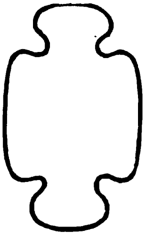
Let the thread be arranged as an oblong — a parallelogram (Fig 42).

42.

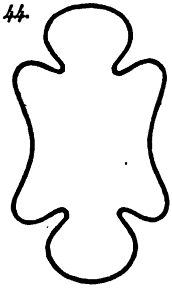


Draw in the corners and sides alternately, and oblong forms like the following will be produced (Figs. 43 to 47):

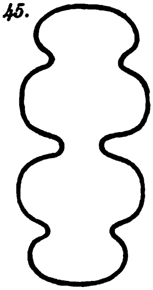
43.



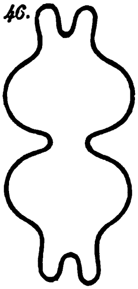
44.



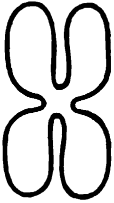
45.



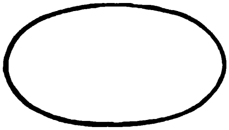
46.



47.



48.



Or let the thread take the form of an oval, and the following forms can be made (Figs. 48 and 49).

49.

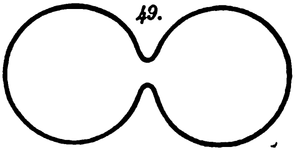
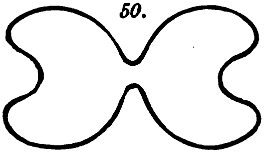


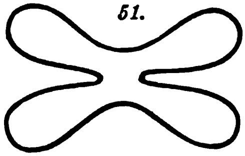
Fig. 49 may be compared to dumb-bells.

Figs. 50, 51, 52, etc., can also be made:

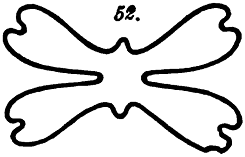
50.



51.

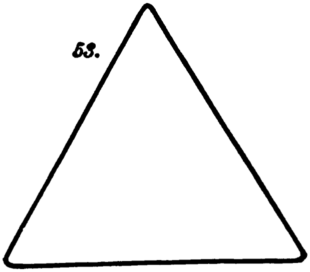


52.



The thread is next arranged to form an equal-sided triangle —

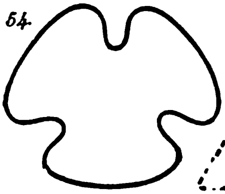
53.



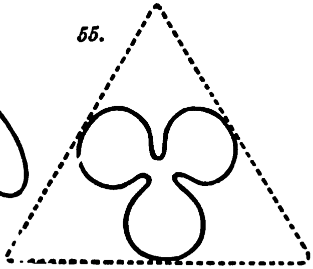
an equilateral triangle (Fig. 53).

By again drawing the corners and sides alternately toward the middle, the following forms may be produced:

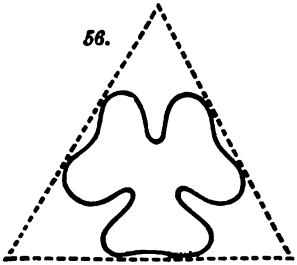
54.



55.

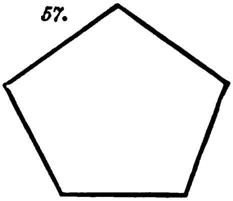


56.

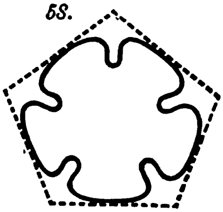


From the pentagon or five-sided form (Fig. 57) the following rosettes may be obtained:

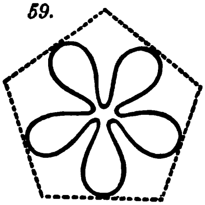
57.



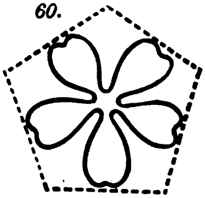
58.



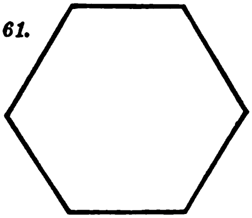
59.



60.

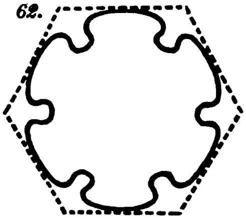


61.

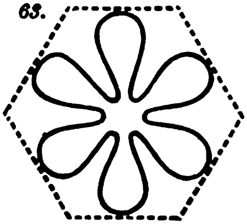


From the hexagon or six-sided form (Fig. 61) the following rosettes may be developed (Figs. 62 to 64).

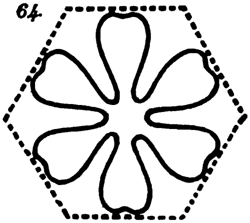
62.



63.



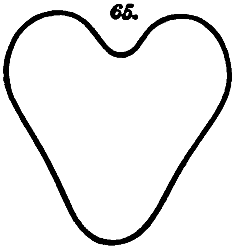
64.



Seven-sided forms are too difficult for the Kindergarten child.

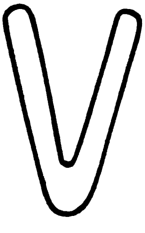
Eight-sided forms are easily derived from the four-sided form and the circle.

65.

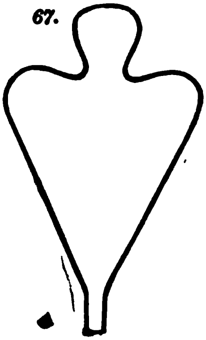


Forms of life may be derived from any of the forms of knowledge. For instance, from the square or circle a heart can easily be made, simply by pushing the upper and lower sides of the square or circle gently downward (Fig. 65).

66.



67.



From the equilateral triangle we can easily develope a pair of compasses (Fig.) 66);

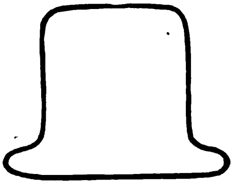
or a bellows (Fig. 67).

68.

From any of the geometrical forms we can make the following forms:

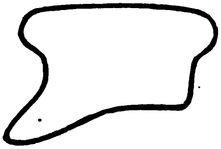
a tobacco pipe (Fig. 68);

69.



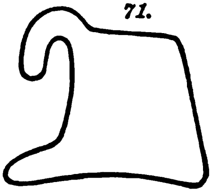
papa's hat (Fig. 69);

70.



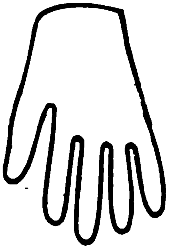
a cap (Fig. 70);

71.



a soldier's cap (Fig. 71);

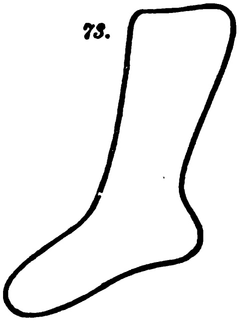
72.



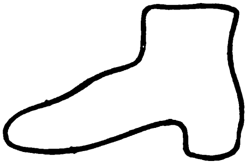
a glove (Fig. 72);

a sock (Fig. 73);

73.



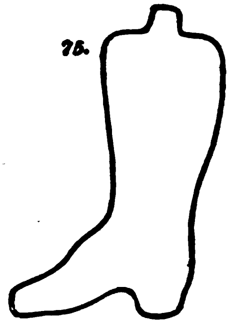
74.



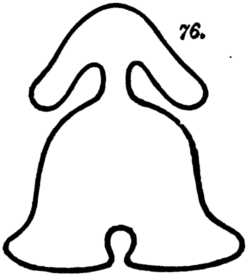
a shoe (Fig. 74);

a boot (Fig. 75);

75.



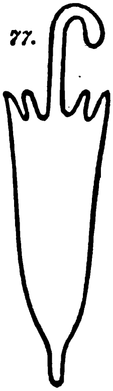
76.



a helmet (Fig. 76);

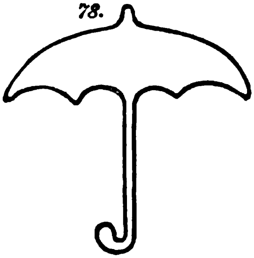
a closed umbrella (Fig. 77);

77.



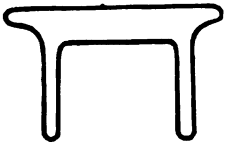
an open umbrella (Fig. 78);

78.



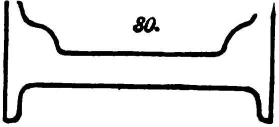
a table (Fig. 79);

79.

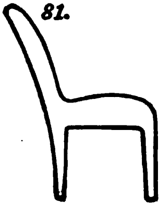


a bedstead (Fig. 80);

80.



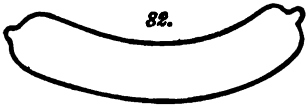
81.



a chair (Fig. 81);

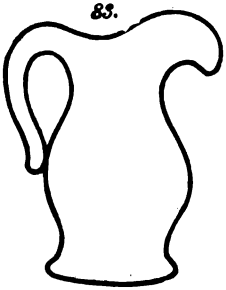
a sausage (Fig. 82);

82.



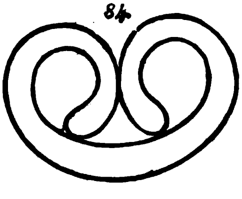
a pitcher (Fig. 83);

83.



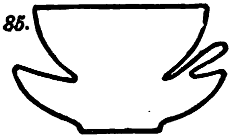
a bretzel (Fig. 84).

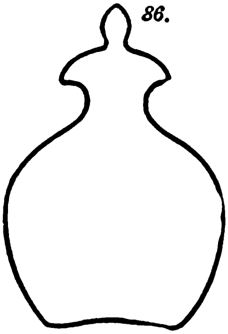
84.



cup and saucer
(Fig. 85);

85.



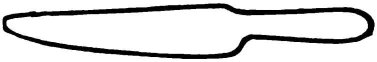


86.

a bottle (Fig. 86);

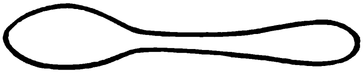
a knife (Fig. 87);

87.



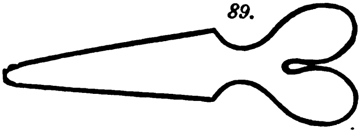
a spoon (Fig. 88);

88.



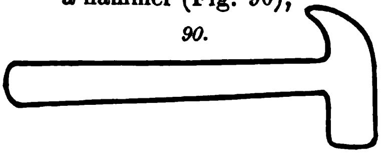
a pair of scissors (Fig. 89);

89.



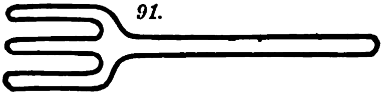
a hammer (Fig. 90);

90.



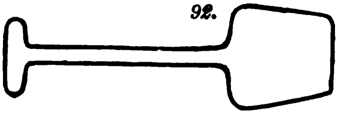
a fork (Fig. 91);

91.



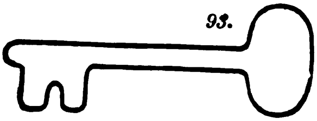
a spade (Fig. 92);

92.



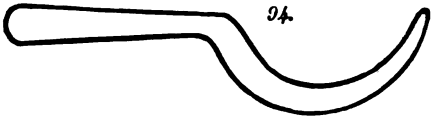
a key (Fig. 93);

93.



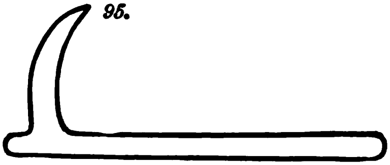
a sickle (Fig. 94);

94.



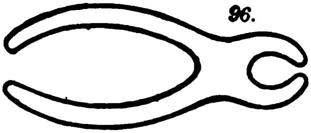
a scythe (Fig. 95);

95.

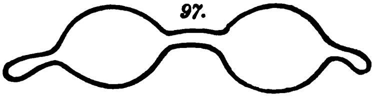


a pair of pinchers (Fig. 96);

96.

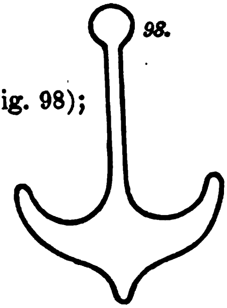


97.



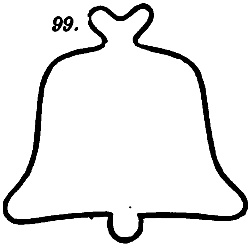
a pair of spectacles (Fig. 97);

an anchor (Fig. 98);



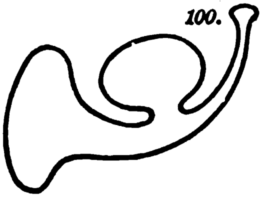
98.

a bell (Fig. 99);



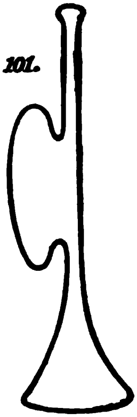
99.

a trumpet (Fig. 100);



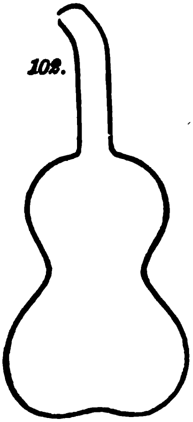
100.

a horn (Fig. 101);



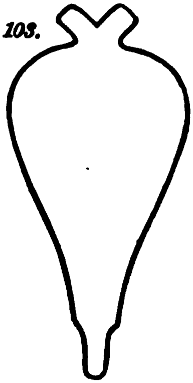
101.

a guitar (Fig. 102);



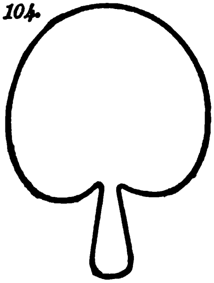
102.

a turnip (Fig. 103);



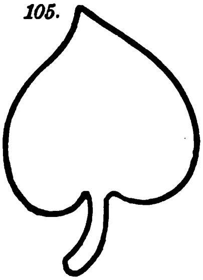
103.

a violet leaf (Fig. 104);



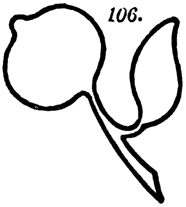
104.

a morning-glory leaf (Fig. 105);

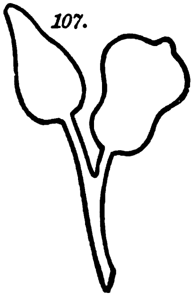


105.

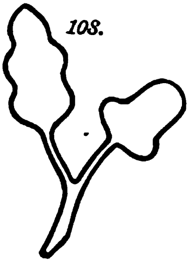
an apple with leaf (Fig. 106);


106.

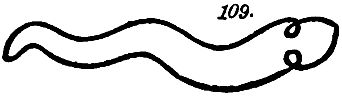
a pear with leaf (Fig. 107);


107.

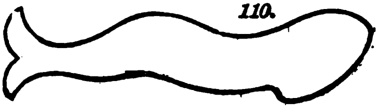
an acorn and an oak-leaf (Fig. 108);


108.

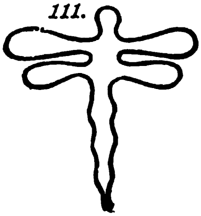
an eel (Fig. 109);


109.

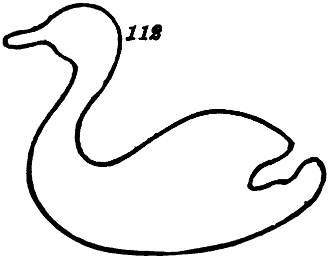
a fish (Fig. 110);


110.

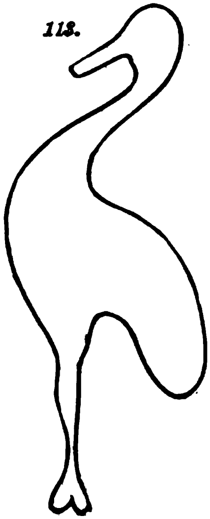
a dragon-fly (Fig. 111);

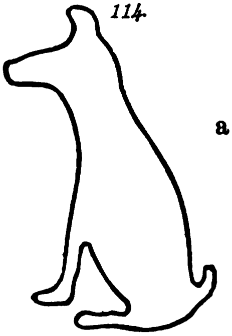

111.

a duck (Fig. 112);


112

a stork (Fig. 113);

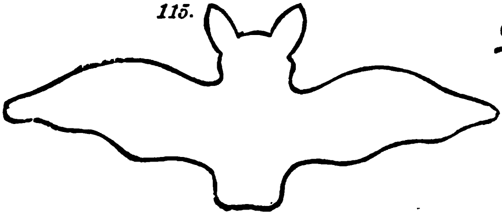

113.


114.

a dog (Fig. 114);

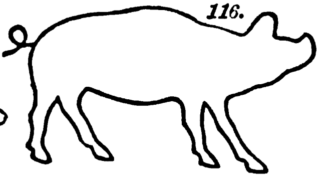
a bat (Fig. 115);

115.



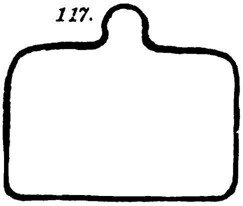
a pig (Fig. 116);

116.



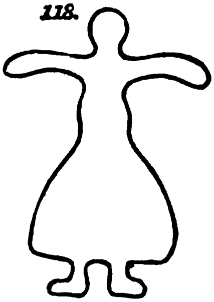
a portmanteau (Fig. 117);

117.

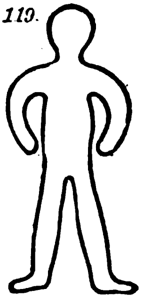


two dolls (Figs. 118 and 119);

118.

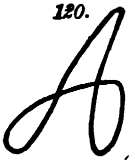


119.



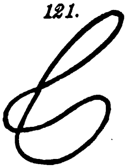
the letter A (Fig. 120);

120.



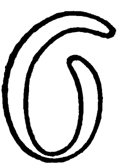
the letter C (Fig. 121);

121.

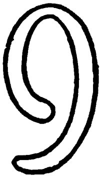


the figures 6, 9, and 2 (Figs. 122 to 124);

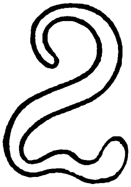
122.



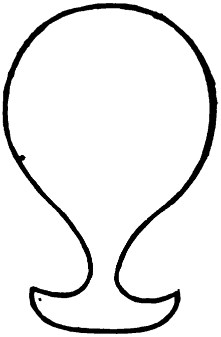
123.



124.

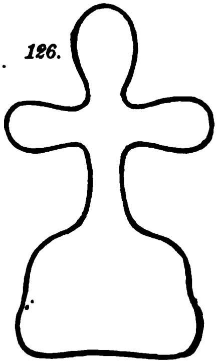


125.



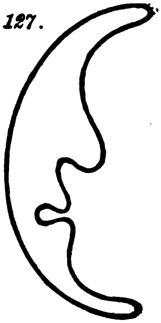
a balloon (Fig. 125);

126.



a cross (Fig. 126);

127.



the new moon (Fig. 127);

128.

a human head (Fig. 128).

From these forms it may be seen that utensils, musical instruments, leaves, fruit, fishes, birds, animals, and many other forms, can be represented with the thread in a simple way. If necessary, a few strokes with the pencil may be added to complete the form. The child may also trace the outline of the form taken by the thread on the slate, in order to preserve it.

The forms ought, of course, to be made very evenly.

From these exercises the child also learns to measure distances with the eye.

As long as the slate and thread are wet, and therefore adhere, so long the form will retain the exact outline given. But when the slate and thread get dry, they no longer adhere, and the form will soon be destroyed if the slate is much moved about. Thus, through this game, the child will become acquainted somewhat with the law of adhesion.

The Thread-Game may be said to amount to a *preliminary course of drawing*, so far as the faculty for the reproduction of forms goes; for the child can make symmetrical figures and curved lines with the thread *long before it can draw* the same on the slate or on paper. It trains the children to order, neatness and skillfulness, and needs much supervision, though it is much liked by children.

If the children should accidentally spill water, or splash it on the table, they may be told many facts of this useful and precious liquid — one of them being, that we could not live without it. The dew and rain, the mist and clouds, the snow and hail, the ice, the little brook, the stream, lake and ocean,— all give bountiful material for interesting and instructive facts.

If possible, the forms should always be reduced to the ground-form, i. e. the form from which they started, as the child does, for instance, in the Third Gift, when the eight little cubes are changed and rechanged into many forms, and finally made again into the whole cube.

The symmetrical forms thus produced are many and graceful, and, when correctly formed, they may be utilized for embroidery designs.

When the child has produced a pretty or correct form, it is naturally desirous of retaining the same. For this purpose the slate has only to be laid aside until it be dry, when the form may be easily traced with the pencil, after the clinging thread has been removed, and thus the pictured form will be made more lasting.

Further, in order to preserve the designs, many of which would give patterns for braiding, etc., the thread may be saturated with ink, instead of water, and the figure desired may be secured by lightly pressing a sheet of paper upon the thread, thus obtaining a permanent impression.

By following this method of making outline forms of objects with the thread, the child will be able to produce designs far more correct, than he could possibly do at this age by free-hand drawing. The child will also observe, that with the dry thread upon the dry slate he can do nothing, for it will retain no form, it is perfectly unstable; but with immersion it at once acquires new properties, and is the child's tractable servant, — and upon the child now alone depends all the further processes — whether the forms are to be untidy and crooked, or true and beautiful. Therefore, while this game helps to train the child's faculties, the eye, mind, memory and fingers must be his faithful aids.

In looking around us, how many nervous people do we not see — men and women who, when addressing others, or when being addressed, play with their watch-chain, or a little string, or twist their pocket-handkerchief around their hand, or who hold and twist one of the buttons of the person to whom they speak, or who pass their fingers continually over their face, pull their fingers, etc., etc. And if we turn to the little children, *active* as healthy children are, can we wonder that the busy little fingers — which are all action — turn to mischievous work when they are not taught any better? Noble qualities often remain dormant, and instead evil ones will be awakened, if a child is neglected or repulsed when he comes to us with the old question: "What shall I do?" The desire for action is so great, that the little fingers cannot be quiet; and if there is no guiding hand to lead them to do right, we may be certain to find the old saying ever true, that "Satan finds some mischief still for idle hands to do."

Finally: this Gift gives the child a very desirable lightness and delicacy of touch, which will be found of great advantage later on, when drawing is commenced, and when light and graceful lines are required.

THE THIRTEENTH GIFT.

THE POINT.

From the *body* to the *plane* (tablets), to the *line* (as represented in the sticks, circles, half-circles and in the Thread-Game), we now proceed to the *point*, which represents, so to say, the embodied corner of the cube. Beginning with the concrete, we have passed on toward the abstract, i. e. from the consideration and analysis of the solid bodies, to the plane-surface, and the edge, to the smallest possible portion of a body, viz., *that* part of the junction of two or three lines or sides, which we call *the point*, and which — more accurately speaking — is merely imaginary, and cannot be taken from the body. But this same quality had also the planes and the lines, — and as we embodied these, we may do the same also with the point.

The point is that which has neither length, breadth nor thickness; to indicate it, we make *a dot;* but even the *centre* of the dot could not be taken as actually the point. This invisible quantity we have to represent in the kindergarten with something sufficiently tangible to *take hold of* and *work with.*

What is the material used for this Gift ?

Frœbel speaks of various materials with which to fill out this gap in the system. As the line is embodied in a tangible way in the stick, ring and thread, so the point is embodied in what approaches it as near as possible, viz.: seeds, shells, small pebbles, leaves and buds of flowers, etc. Sawdust and sand may also be mentioned, for they also are capable of taking form. The child's first act would be to make itself a "garden" with this latter material, or to draw forms and figures in it; to make mountains, dig holes, etc. However, activity of this kind belongs in another place, — to the occupations of *the garden.*

The embodied point must be qualified to form lines and enclose spaces. Sawdust and sand cannot do this, as the particles cannot be taken hold of *singly*, being too small; and many of them joined together rather represent *the body*.

But little stones, shells or seeds (if not too small) *can be taken hold of*, and can easily be joined to form lines; and with such lines again all possible kinds of figures can be represented on the plane.

When giving seeds to the children, various kinds may be mixed, and the child has at once an exercise in *sorting* and *grouping* them into little heaps according to their kind; though this may also be classed among the occupations of the garden. Such exercises are more especially for the younger children of the kindergarten, and also for the nursery.

The *grouping of things* — to unite what is similar, to separate what is dissimilar — is a natural feeling or instinct in the human being, covering its entire mental disposition. To keep things in order is impossible unless one is proficient in the *art of sorting*.

Remember the sorting of the different blocks and bricks, in the sticks of various lengths, in the rings and half-rings, in paper-cutting (the parts), etc., etc. Sorting is easy, if the sense of form is somewhat developed.

According to the *logical* sequence of the Gifts, the Point is the last one, yet *practically* it is one of the first given to the child. It seems also to act as a starting-point for many ideas to the child.

Whatever the child does, the aim to be kept in view should always be to make the habits of the mind and body orderly, practical and logical.

To many of us, one of the earliest pleasures of happy childhood was the picking up of little stones and shells at the sea-shore or in gravel-walks, or of blossoms, or the petals of blossoms that had fallen off the trees or bushes in the garden, and arranging these in pretty outline forms. Children may also often be found sitting on the shore on the fine, white beach-sand, laying out and fencing in imaginary parks and gardens with the little white shells and pebbles. The love for the beautiful is to some extent gratified in this way.

What is new in this Gift?

The child learns the fact, that the *line* is not the ultimatum; for it may be resolved into a series of points. The mathematical idea of the point — position without length, breadth or thickness — it is of course hardly possible to convey to a child; nor is it desirable to do so. The facts relating to points — that *two* of them determine the direction of a straight line, — that the shortest distance between two points *is* a straight line, — that a *curve* is a line whose direction changes at every point, — *all these facts receive their illustration* in the kindergarten from this Gift; and for the young child's mind this is as yet quite enough. A nearer approach to the region of pure mathematics would be but to stupefy or overload the young mind. In the kindergarten *the point is made a material for form*, — not for the abstract. — *Lentils* serve well, perhaps better than anything else, for this purpose; for they are nearly uniform in size and shape, and, having only slightly convex sides, do not roll out of place and thus spoil the form.

How is this Gift introduced?

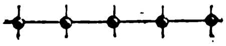
A pea, a bean, a lentil, and a kernel of corn may at **first be given**, and the child's ever ready imagination will compare the pea, perhaps, to a ball, or the little white bean to an egg, and so forth. Or if a shell or a pebble be given, the child will just as readily "give it a name." — Next, the form and substance of the given embodied point will be spoken of. Little stories, the subjects of which are the material in question, or little songs, will endow it with life and beauty, at the same time opening to the child the wonderful book of nature.

A seed may be planted, and the child may observe its germination and growth.

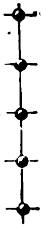
In what manner should instruction proceed?

The child will next be directed to place the seed on the intersection of two lines of the square net-work on the table; four more seeds may be added one after another and the child counting them, will notice, that it has now as many seeds as it has fingers on one hand. The additional seeds are placed, like the first one, on the intersections of the lines in *one* direction, either from right to left (Fig. 1), or "up and down" (Fig. 2).

1.

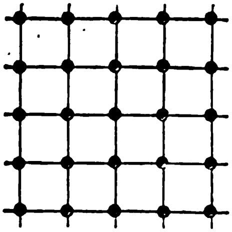


2.



The child receives more seeds — five at a time — until it has 5x5 seeds, and placing each five seeds in the same direction and parallel to

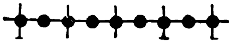
3.



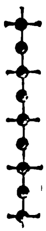
the first line, but always on the intersection of the lines, a regular square is formed (Fig. 3).

Next the child may begin again with five seeds, laying them as before on the intersections of the lines—for instance, in a horizontal direction (Fig. 1). Then four more may be given, and these are placed between the intersections and the seeds, right in the middle of the line, producing a more clearly defined line and at the same time exercising eye and hand (Fig. 4).

4.

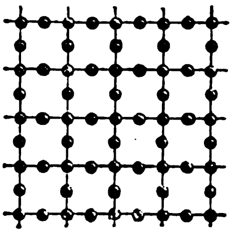


5.



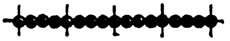
The same can be carried out, of course, in the vertical direction (Fig. 5), and by joining both, or rather, repeating the one and the other four times in the manner described, a square is produced again (Fig. 6). .

6.

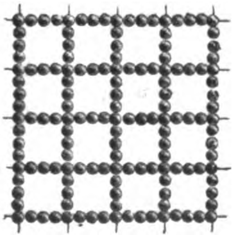


Again, commencing once more with Fig. 4, the child receives this time *eight* seeds in addition, and places always one of these between the seed lying on the intersecting lines and the seed in the middle of the line, thus producing a continuous *line* consisting of points closely touching each other, and verifying practically, that a line can be resolved into a series of points, or vice versa (Fig. 7).

7.



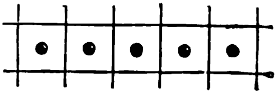
8.



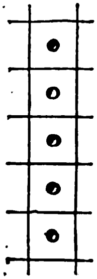
The same exercise can again be made in the vertical direction, and, finally, by repeating the one and the other four times, a square network of lines, which are resolved into points, is produced (Fig. 8).

Again only five seeds may be given to commence with, and these are placed, each in the middle of a square, in the direction from right to left (Fig. 9); or from front to back (Fig. 10); or combined in both directions (Fig. 11).

9.



10.



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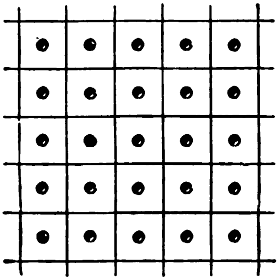
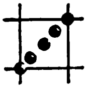


12.



When the diagonal line is to be formed, the child is directed to place, for instance, one seed at the right upper corner, and one on the left lower corner of a square, one in its centre, and one each between the latter seed and each of the two corners (Fig. 12).

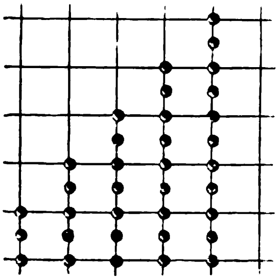
This line may be made in the other direction, or may be continued, by directing the child to lay the seeds right through the square from one corner to the corner diagonally opposite.

These exercises should however not be strictly carried out, one after the other; but at times the children should be permitted to play with the seeds as they please and the guiding word and example of the kindergartner or mother will do much to make it all profitable and full of enjoyment to the young children. A finger exercise, or an exercise for the voice and language may be introduced and will increase the interest and pleasure.

The various lines formed with the seeds can next be combined, and again forms of knowledge, forms of life, and forms of beauty may be produced; although the forms of knowledge had better here be used only for starting-points, or ground-forms, from which to develop the other forms. The various lines may at first also be arranged in the different lengths and directions, forming the elementary parts in the Series of Kindergarten-Drawing.

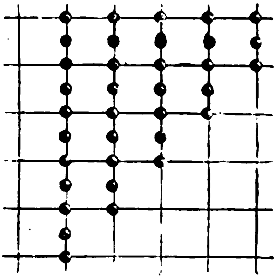
For instance: a vertical line of the first length, i. e. over one square, may be laid, and next to it, on the right, beginning at the same horizontal line below, a vertical line over two squares is laid; next to this one, starting even with the lower ends of the first two lines, a line over three squares is laid, and so on with a line over four squares, and another over five squares. This combination of lines forms the limb *a* in the Series of Drawing. But the child is not told so; to it each line represents a "something." The longest line may be "papa;" the second longest line surely must be "mamma;" the third line in length is the "big brother or sister" or "dear nurse;" the line over two squares is "the child itself," and the shortest line cannot be anybody else but "the darling baby at home," — or perhaps a "pet dog," or "pussy" (Fig. 13).

13.

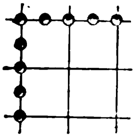


These lines can be arranged in various ways; for instance: "papa" can stand *first*, and "baby" last; or the lines may be reversed — either the longest *or* shortest line first, so that their upper ends be kept level (Fig. 14), and they may represent to the child, for instance, the different stockings (or other articles of clothing) of the members of the family, hung on the clothes-line.

14.



15.

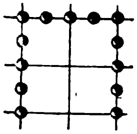


Or a vertical line may be laid over one or more squares, and a horizontal line may be joined to it at one of its ends, forming thus a *right angle* (Fig. 15).

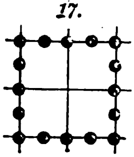
This right angle will however not be a *right angle* in the young child's mind, for it would not be able to understand this as yet; but it would stand for the picture of *a flag,* — and this idea entering the active mind, the busy hands will at once go up in the air, swaying this way and that way, imitating a flag moved by the wind. Also one or more children will ask for more seeds "to make the flag prettier."

Again,—repeating the right angle, another vertical line is added parallel to the first one, and two right angles are gained, which form the child, however, will readily call *a table* (Fig. 16); this table may again be changed into another table.

16.



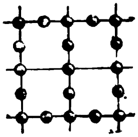
17.



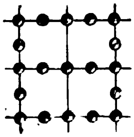
Adding to this form, below, a horizontal line, a square is produced with its four right corners and its equal sides (Fig. 17). This form represents for the child *a window*, or *a box*, or *a picture frame*.

This square may be divided equally by a vertical line, and two oblongs are produced (Fig. 18), which represent for the child, however, a *French window*, that can be opened like a folding door.

18.



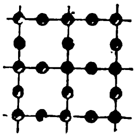
19.



Again making a square, and dividing it into two equal parts by a horizontal line, two oblongs in the other direction (Fig. 19) are produced, which the child will probably call an *English window*, i. e. a window that can be pushed up and down, or a *box*, etc.

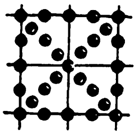
By again making a square, and dividing it both vertically and horizontally, a square subdivided into four equal, small squares is produced (Fig. 20), which is called by the child *a window*.

20.



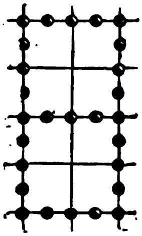
The child is *not* led to look at the *oblongs* or *squares*, and to find out their qualities, their likeness and unlikeness,—but to notice the *window-panes*, etc., and it will readily enter into comparing these with each other and will notice similar forms around.

21.



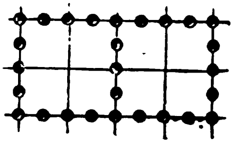
The square may be divided diagonally by lines drawn in two different directions. By dividing it thus twice, a square with four right-angled isosceles triangles within it, is the result (Fig. 21), which may be called by the child, an envelope.

22.



Two squares may be laid touching each other at the sides, forming an oblong either in the vertical or horizontal direction (Figs. 22 and 23).

23



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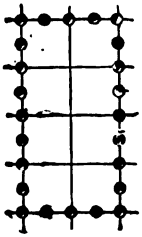
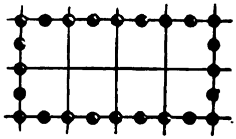
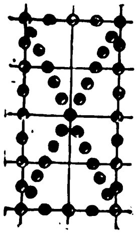


These oblongs may next be represented *without* the dividing lines, thus giving the child a practical knowledge of the relation of the square and the oblong to each other (Figs. 24 and 25). These forms may be likened to a door or a wall.

25.

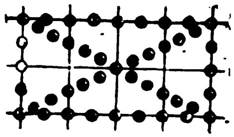


26.



These two latter forms may also be divided diagonally in both directions (Figs. 26 and 27), representing an envelope or a fence.

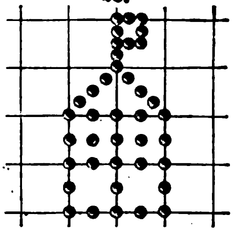
27.



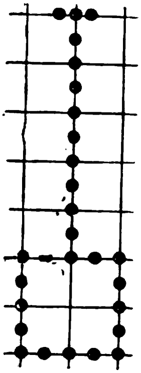
By this latter division of the oblong the child receives an idea of the straight line slanting through *two* squares, instead of through only one square, and which line is termed by the child *half slanting.*

Next, a square may be laid, each of its edges being two squares in length (Fig. 17), and a right-angled isosceles triangle may be added at the top, and there is a house with a roof to it. Door and windows are represented by vertical lines, and the child will place with great glee a flag at the top of the house (Fig. 28).

28.

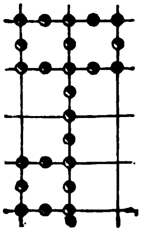


29.



Or the child will be directed to lay a square as before, and from the middle of the upper side it will extend a vertical line through five squares, at the farthest end of which one seed is placed on each side, and a spade is the result (Fig. 29).

30.

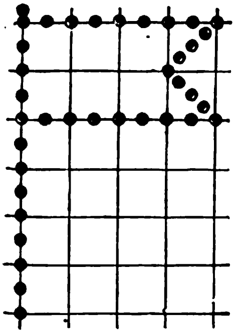


Or an oblong extending from right to left over two squares may be laid, and from the middle of its lower or front side a vertical line over three squares is laid, telling the child that this is to be a key. and to finish it by itself by adding the "beard of the key" (Fig. 30).

Similarly the following forms may be carried out:

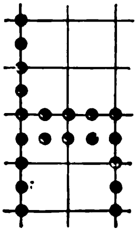
a flag;

31.



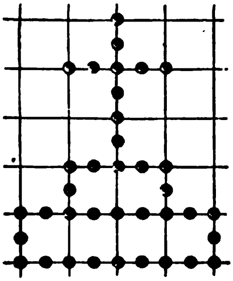
a chair;

32.



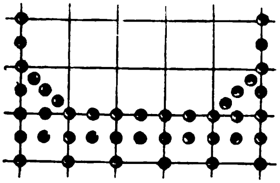
an altar-cross;

33.



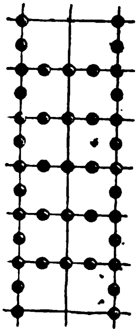
a bedstead;

34.



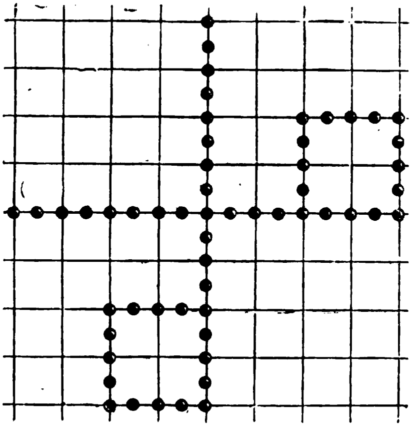
a ladder;

35.



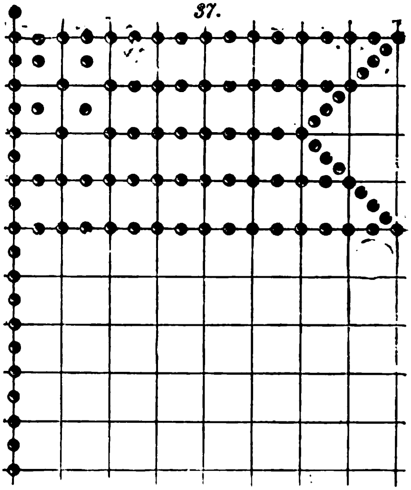
a pair of scissors;

36.



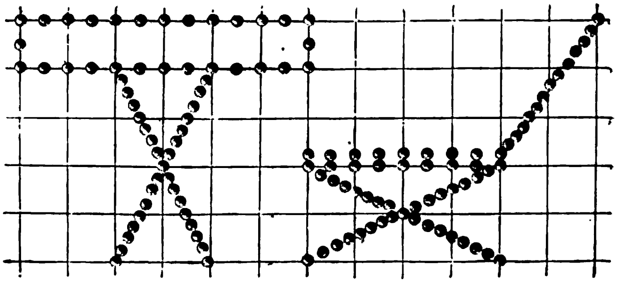
a flag.

37.



In the following figures the acute and obtuse angles are the prominent features.

38. 39.



a table and easy chair (Figs. 38 and 39).

Fig. 40, representing a sun-shade, is developed from the obtuse-angled triangle.

40.

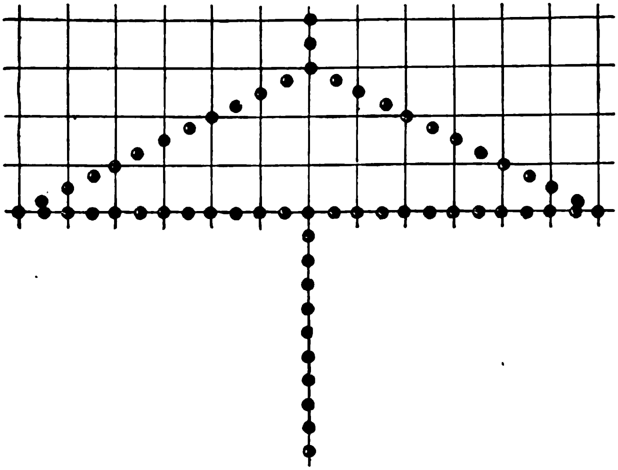
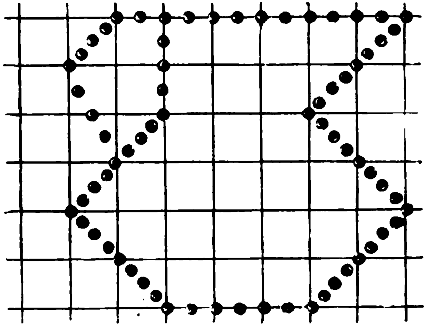


Fig. 41, representing a pitcher, is developed from the hexagon.

41.



It may be seen by these few examples, how manifold the forms can be.

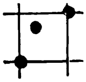
Is the circular line represented in this Gift?

Certainly; for it will teach the child by experience, that this line is changing direction with each additional "point" added to form the line.

The child commences to make the quarter-circle within a square, taking care to place the seeds in the proper place.

How is this done?

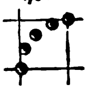
42.



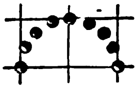
The child is directed to place a seed each at the diagonally opposite corners of the square, for instance: at the left lower and right upper corner; a third seed is placed between the middle of the square and the left upper corner (Fig. 42).

Then two more seeds are given and placed each one between the last one and the corner seeds, and a pretty good representation of the curved line is gained (Fig. 43).

43.



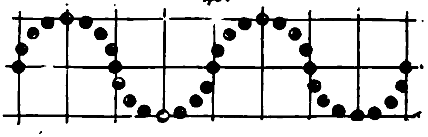
44.



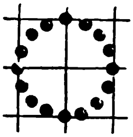
A similar curve added towards the left, and the half-circle appears (Fig. 44).

A serpentine line is produced by joining half-circles at the ends, each turning the opposite way (Fig. 45).

45.



46.

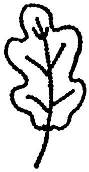


After the above exercises, it will be easy for the child to form a circle (Fig. 46).

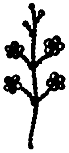
Almost any form may be represented by means of the embodied point, each one giving rise to instructive remarks and play. For instance, leaves and flowers may be laid with large and small seeds, or various seeds mixed (Figs. 47, 48, 49).

47.

48.



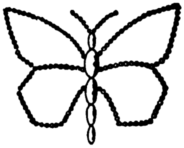
49.



50.

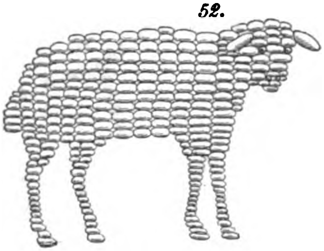
By using "corn" for material, an ear of Indian corn may easily and well be represented (Fig. 50).

51.



A butterfly may be represented both with shells and seeds (Fig. 51).

52.

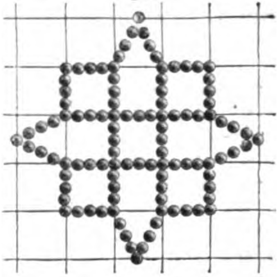


A sheep may be represented by not only making the outline, but filling in the same, using either split peas or small white split beans. The eyes, ears, mouth, tail, and feet may be represented with sago and shells (Fig. 52).

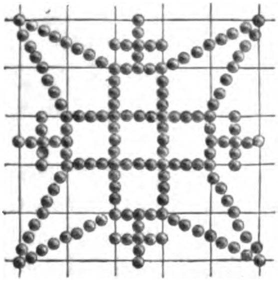
Can symmetrical forms also be represented?

Yes, they can be laid, for instance: Direct the child to outline a square with seeds of one kind. Touching this at the corners four more squares may be added, and the spaces in the sides may be connected by acute angles; etc. (Fig. 53).

53.

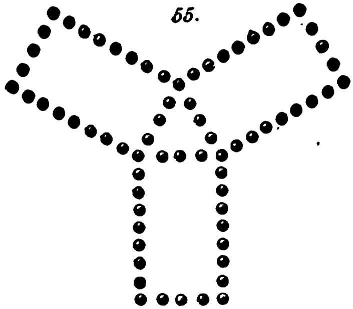


54.



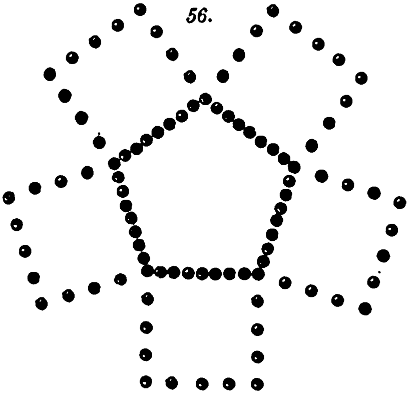
Or, in the sides of the central square may be joined *squares*, and the spaces may be connected by acute angles, etc. (Fig. 54); in the sides of the outer squares may be placed crosses of vertical and horizontal lines, etc.

55.



Or, the child may start with an equilateral triangle for central form and join, for instance, oblongs in its sides (Fig. 55).

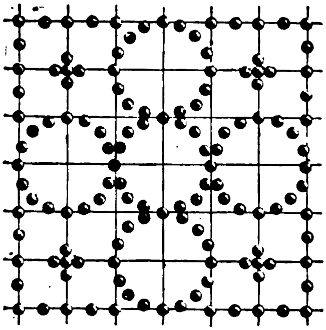
56.



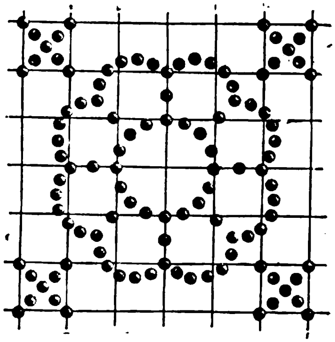
Or a five-sided form may be placed in the centre, and outside of this other forms are added, for instance, *squares* as in Fig. 56, always though keeping the form five-sided, etc.

The starting or central form may also be *circular*, and curved as well as straight lines may be added, as, for instance, in Figs. 57 and 58.

57.



58.



All the foregoing forms laid with the embodied point will have rather a clumsy appearance. But it must be remembered that this Gift is meant for the primitive activity of the child. Also this Gift should always precede the occupation called "Perforating," for it gives the true preliminary exercises for the same; for here, in the Gift, the child has the embodied point already for use, whereas in the Occupation it has *to create* its point by its own effort.

The embodied point should not be looked upon from an æsthetical point of view, but rather from the pedagogical point of view; and this point of view is the only justifiable one. Pedagogics must never lose æsthestics entirely out of sight; but æsthetics should never claim to rule pedagogics. Man's destination is not to be a one-sided bel-esprit, but to become a true human being whose talents, capacity and powers should be developed in *all directions*, and the best should be made of them. And to *such* development the Kindergarten means of Gifts and Occupations, and its educational principles will greatly help, if properly carried out. Frœbel, in the development of his Gifts and means of occupations, strips off—so to speak—the material, the bodily, step by step. There, where we arrive at the point, we have reached the highest point of analysis, and a further step is impossible. The point was prominently visible in all former Gifts, only it was inseparable—indivisibly connected with all the objects. Now, in this Gift, it is independently the subject of work. In the Nurseries occupations with beads and pinheads are well known; and both may be applied to the advantage of the child's development under skillful management of mother or nurse. Frœbel's Gifts and Occupations contain the foundation to all human occupations; they are the true means of play for the children, and *as such* they are *the guide* for the right and just treatment of *all other means* of occupations; for *together* they do justice alike to all the bodily and all the mental powers of the child.

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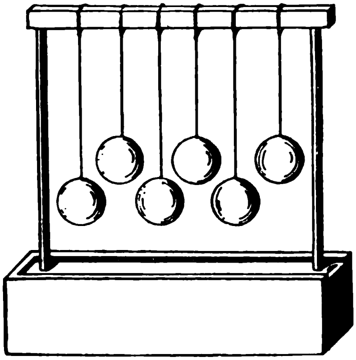
Steiger's Kindergarten Material.

The First Gift.

The Balls.

Aim: to teach color (primary: red, blue, yellow, and secondary or mixed: purple, green, orange), direction (forward and backward, right and left, up and down); to train the eye; and to exercise the hands, arms and feet in various plays.

No. 1. A set of *six worsted balls*, of the rainbow or standard kindergarten colors, with strings. In a wooden box with cross-beam for hanging the balls. With Directions (*Froebel's First Gift for Babies*). $0.75.



1a. The same as above, except that the balls are of *rubber*, covered by a crochet or netting of worsted. $1.00.

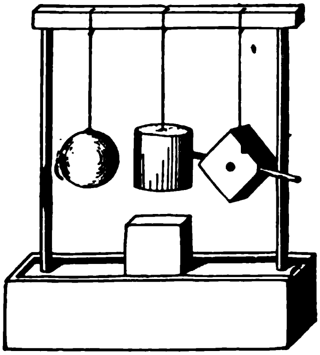
2. A set of the *six worsted balls*, loose, without box. $0.50.

Directions for the use of the First Gift are contained in Kraus' *Guide*. Number One. In paper. $0.35.

The Second Gift.

Sphere, Cylinder, and Cube.

Aim: to teach form and to direct the attention of the child to the similarity and dissimilarity existing between different objects. This is done by pointing out, explaining, and counting the sides, corners, and edges of the cube; by showing that the sphere, the cylinder, and the cube differ from one another in their several properties on account of their difference of shape; by pointing out that the *apparent* form of the sphere is unchanged, however looked at, but that the apparent forms of both the cube and the cylinder vary according to the point from which they are viewed.



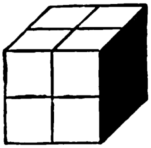
11. A set consisting of *a sphere*, *a cylinder*, and *two cubes* — neatly made of wood and provided with the necessary staples, holes, and strings. In a varnished cherry-wood box with cross-beam for hanging the forms. $0.60.

Directions for the use of the Second Gift are contained in Kraus' *Guide*, Number One. In paper. $0.35.

The Third Gift.

Frœbel's First Building Box.

Aim: to illustrate form and number, and also to give the first ideas of fractions, symmetry, etc.



21. *A large cube* (2×2×2″) equally divided into 8 small cubes (each containing 1 cubic inch). In a varnished cherry-wood box. $0.20

Diagrams and Directions for the use of the Third Gift are contained in Kraus' *Guide*, Number Two. In paper. $0.70;

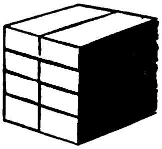
and, separately, in the special reprint therefrom:

The Third Gift. In paper. $0.30.

The Fourth Gift.

Frœbel's Second Building Box.

The aim of the Fourth Gift is similar to that of the Third; but it gives rise to the observation of similarity and dissimilarity, and allows a very varied and interesting application in the production of forms of *knowledge* or mathematical forms), of *beauty* (or symmetry), and of *life*.



31. *A large cube* (2×2×2″) divided into 8 equal oblong blocks (each $^{1}/_{2}$×1×2″). In a varnished cherry-wood box. $0.20.

35. *Frœbel's Kindergarten Occupations for the Family*. No. 15. (*Building Number One*.) In a paper box with chromo-lithographed cover. $0.75.

This box contains 8 cubes (1×1×1″ and 8 oblong blocks (2×1×$^{1}/_{2}$″). With Diagrams and Instructions (*The Third and Fourth Gift* from Kraus' *Guide*).

Diagrams and Directions for the use of the Fourth Gift are contained in Kraus' *Guide*, Number Two. In paper. $0.70;

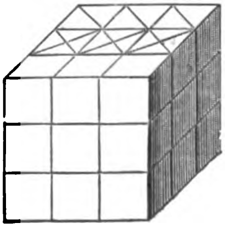
and separately, in the special reprint therefrom:

The Fourth Gift. In paper. $0.30.

The Fifth Gift.

Frœbel's Third Building Box.

This is a continuation of, and a complement to, the Third Gift; it admits of a more extended application than the Third and Fourth.



41. *A large cube* (3×3×3″) divided into 21 *whole* cubes (each containing 1 cubic inch), 6 *half* and 12 *quarter* cubes. In a varnished cherry-wood box. $0.40.

Diagrams and Directions for the use of the Fifth Gift are contained in Kraus' *Guide*, Number Two. In paper. $0.70;

and separately, in the special reprint therefrom:

The Fifth Gift. In paper. $0.30.

(The Fifth Gift.)

No. 43. *Frœbel's Kindergarten Occupations for the Family.* No. 16. *(Building,* Number *Two.)* In a paper box, with chromo-lithographed cover. $0.75.

This box contains 21 cubes (1×1×1″), 6 *half* and 12 *quarter* cubes. With Diagrams and Instructions *(The Fifth Gift,* from Kraus' *Guide).*

The Fifth Gift B.

The Child's Fifth Building Box.

46. *A large cube* (3×3×3″), as a combination of the Second and Fifth Gifts, divided into 12 cubes (each 1×1×1″), 8 additional cubes from each of which one corner is removed corresponding in size to one quarter of a cylinder; 6 cylinders (each 1×1×1″) divided into half cylinders, and 3 cubes (each 1×1×1″) divided diagonally into quarter cubes. In wooden box. $0.60.

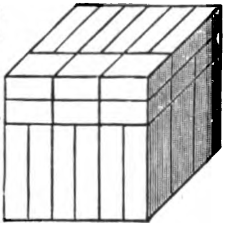
Diagrams for the use of the Fifth Gift *B.*, in wrapper. $0.50.

The Sixth Gift.

Frœbel's Fourth Building Box.

This is a continuation of, and a complement to, the Fourth Gift; it admits of a very extended application.

51. *A large cube.* (3×3×3″) divided into 18 *whole* oblong blocks (each $^1/_2$×1×2″), 3 similar blocks divided lengthwise into 6 (each $^1/_2$×$^1/_2$×2″), and 6 divided breadthwise into 12 (each $^1/_2$ × 1 × 1″). In a varnished cherry-wood box. $0.40



Diagrams and Directions for using the Sixth Gift are contained in Kraus' *Guide* Number Two. In paper. $0.70;
and separately, in the special reprint therefrom;
The Sixth Gift. In paper. $0.30

53. *Frœbel's Kindergarten Occupations for the Family.* No. 17. *(Building* Number *Three.)* In a paper box, with chromo-lithographed cover. $0.75.

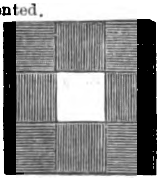
This box contains 18 oblong blocks (2×1×$^1/_2$″), 3 similar blocks divided lengthwise into 6 (each 2×$^1/_2$×$^1/_2$″), and 6 divided breadthwise into 12 (each 1×1×$^1/_2$″). With Diagrams and Instructions (*The Sixth Gift,* from Kraus' *Guide).*

The Seventh Gift.

The Tablets.

This Gift consists of quadrangular and triangular tablets, of wood, *differently colored,* and finely polished. ☞ Another (cheaper) style of tablets is that of *light and dark* woods (in their natural colors), the quantities being always evenly divided.

These tablets as well as the preceding Gifts are designed for instruction in shifting or reversing the composition of forms, and combining them. Heretofore, the child had to do with *solids* only, but by means of the tablets the *plane* surfaces are represented.



61. 8 *squares* (1×1″); (red and white). In a wooden box. $0.30.

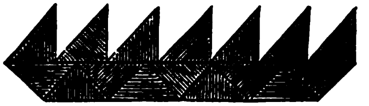
61a. *The same* (light and dark). $0.25.

62. 100 *squares* (1×1″); (red and white). Loose, net $0.75.

62a. *The same* (light and dark) net $0.60.

66. 4 large *right-angled isosceles triangles* (red and green). In a wooden box. $0.25.

No. 67. 100 large *right-angled isosceles triangles* (red and green). Loose, net $2.00



71. 16 (small) *right-angled isosceles triangles* (red and green). In a wooden box. $0.30.

71a. *The same* (light and dark). $0.20.

72. 100 (small) *right-angled isosceles triangles* (red and green). Loose, net $0.75.

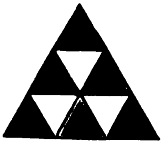
72a. *The same* (light and dark), net $0.60.

76. 32 *isosceles triangles* (red and green). In a wooden box. $0.40.

76a. *The same* (light and dark). $0.30.

81. 54 *isosceles triangles* (red and green). In a wooden box. $0.50.

81a. *The same* (light and dark). $0.40.



86. 9 large *equilateral triangles* (yellow and purple). In a wooden box. $0.30

86a. *The same* (light and dark). $0.30.

87. 100 large *equilateral triangles* (yellow and purple). Loose, net $2.00.

87a. *The same* (light and dark), net $1.20.

91. 54 (small) *equilateral triangles* (yellow and purple). In a wooden box. $0.50.

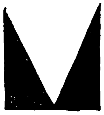
91a. *The same* (light and dark). $0.50.

92. 100 (small) *equilateral triangles* (yellow and purple). Loose, net $0.75.

92a. *The same* (light and dark), net $0.60.

96. 56 *right-angled scalene triangles* (orange and blue). In a wooden box. $0.60.

96a. *The same* (light and dark). $0.60.

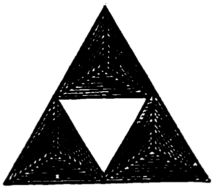


97. 100 *right-angled scalene triangles* (orange and blue). Loose, net $0.75.

97a. *The same* (light and dark), net $0.60.

101. 64 *obtuse-angled triangles* (black and blue). In a wooden box. $0.60

101a. *The same* (light and dark). $0.60.



102. 100 *obtuse-angled triangles* (black and blue). Loose, net $0.75.

102a. *The same* (light and dark), net $0.60.

Diagrams and Directions for the use of the Seventh Gift are contained in Kraus' *Guide,* Number Three. In paper. $0.50

Steiger's *Designs for Tablet-laying.* Arranged by J. Kraus and M. Kraus-Boelte. 43 plates. $0.60.

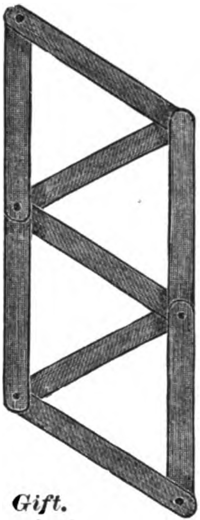
111. *Frœbel's Kindergarten Occupations for the Family.* Nos. 11 & 12 *(Tablet-laying).* In a paper box, with chromo-lithographed cover. $1.50.

This Double Box contains 12 squares, 32 right-angled isosceles, 16 equilateral, 24 right-angled scalene, and 16 obtuse-angled triangles—all colored tablets—554 Designs, and Instructions.

The Eighth Gift.

The Connected Slat.

This Gift represents the embodied edge of the figure, it is the outline form of the plane of which, owing to the breadth of the single slats, it is still a considerable part. It consists of 10 slats about 4″ long and $^1/_2$″ wide.



each overlapping the next one at the end, and fastened to it by a rivet, so that all can be folded up or unfolded, and moved into different forms, geometrical, or symmetrical, or into representation of objects.

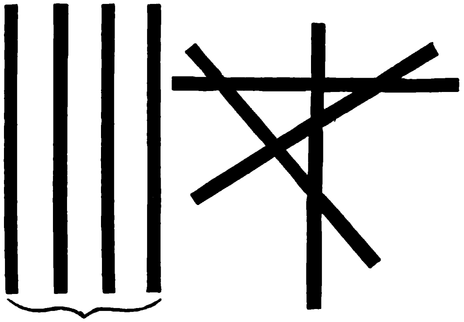
No. 121. A set of 10 *connected slats* each 4", altogether 40" long, with the indication of meter, decimeter, and centimeter on the other side. $0.20.

Diagrams and Directions for the use of the Eighth Gift are contained in KRAUS' *Guide*, Number Four. In paper. $0.70;
and, separately, in the special reprint therefrom: *The Eighth Gift*. In paper. $0.30.

The Ninth Gift.

The Disconnected Slat.

Wooden slats of varying length, width, and texture are used for interlacing, and thereby producing an almost inexhaustible variety of forms.



131.	50	*wooden slats*,	9" long,	1/3" wide.	$0.10.
132.	50	„ „	6" „	1/4" „	$0.09.
135.	50	„ „	9" „	1/3" „	in 6 colors. $0.15.
136.	50	„ „	6" „	1/4" „	in 6 colors. $0.13.

Diagrams and Directions for the use of the Ninth Gift are contained in KRAUS' *Guide*, Number Four. In paper. $0.70;
and, separately, in the special reprint therefrom: *The Ninth Gift*. In paper. $0.30.

141. *Frœbel's Kindergarten Occupations for the Family.* No. 7. *Plaiting (Slat-interlacing).* In a paper box, with chromo-lithographed cover. $0.75.

This Box contains 30 slats, 9" long, 1/3" wide; 30 slats, 6" long, 1/4" wide; 93 Designs and Instructions.

The Tenth Gift.

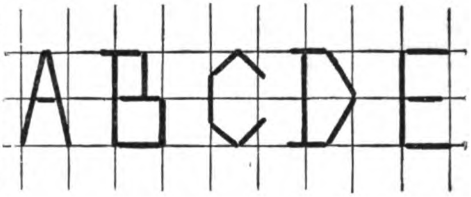
The Sticks.

This Gift consists of *wooden sticks* of various length and one tenth inch thick.

The sticks, like most of the preceding Gifts, are intended to teach numerical proportion and variety of form; they represent the embodied *straight* line, and are an excellent preparation for Drawing and other Occupations.

Round Sticks.

No. 151. 500 round sticks, 1" long. $0.06.



156.	500	round sticks,	2" long.	$0.08.
161.	500	„ „	3" „	$0.10.
166.	500	„ „	4" „	$0.12.
171.	500	„ „	5" „	$0.14.
176.	500	assorted round sticks (150 1", 200 2", 50 3", 50 4", 50 5" long).		$0.15.
181.	250	round sticks,	13" long.	$0.30.

Square Sticks.

182.	500	square sticks,	1" long.	$0.06.
183.	500	„ „	2" „	$0.08.
184.	500	„ „	3" „	$0.10.
185.	500	„ „	4" „	$0.12.
186.	500	„ „	5" „	$0.14.
187.	500	assorted square sticks (150 1", 200 2", 50 3", 50 4", 50 5" long).		$0.15.
188.	250	square sticks,	13". long.	$0.30.

Square Sticks in the primary and secondary colors.

189a.	500	square sticks,	1" long,	in 6 colors.	$0.10.
189b.	500	„ „	2" „	„ 6 „	$0.12.
189c.	500	„ „	3" „	„ 6 „	$0.15.
190a.	500	„ „	4" „	„ 6 ,	$0.18.
190b.	500	„ „	5" „	„ 6 .,	$0.20.
190c.	500	assorted square sticks (150 1", 200 2", 50 3", 50 4", 50 5" long), in 6 colors.			$0.18.

Diagrams and Directions for the use of the Tenth Gift are contained in KRAUS' *Guide*, Number Four. In paper. $0.70;
and separately, in the special reprint therefrom: *The Tenth Gift*. In paper. $0.30.

191. *Frœbel's Kindergarten Occupations for the Family.* No. 1 *(Stick-laying)*. In a paper box, with chromo-lithographed cover. $0.75.

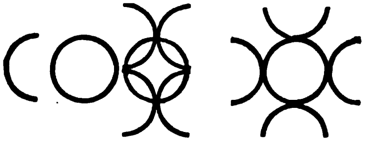
This box contains 500 assorted round sticks, 1, 2, 3, 4, and 5" long respectively, 265 Designs, and Instructions.

The Eleventh Gift.

The Rings.

This Gift consists of whole and half *wire rings*, of various diameter.

The rings are intended, like the sticks, to teach form and proportion; they represent the embodied *curved* lines.



201.	20 whole and	40 half rings,	of 2" diameter.	$0 40.
206.	20 „ „	40 „ „	„ 1 1/3" „	$0.40.
211.	20 „ „	40 „ „	„ 3/4 „	$0.35.

by Google

(The Eleventh Gift.)

No. **216.** 20 whole and 40 half rings, each of 2, 1$^{1}/_{3}$, and $^{3}/_{4}$" diameter (altogether 60 whole and 120 half rings). $0.75.

Diagrams and Directions for the use of the Eleventh Gift are contained in Kraus' *Guide*, Number Five. In paper. $0.70.

Steiger's Designs for Ring-laying, arranged by J. Kraus and M. Kraus-Boelte. 12 plates, in wrapper. $0.30.

221. *Frœbel's Kindergarten Occupations for the Family.* No. 8 *(Ring-laying)*. In a paper box, with chromo-lithographed cover. $0.75.

This Box contains 10 whole and 20 half rings each, of 2, 1$^{1}/_{3}$, and $^{3}/_{4}$" diameter, 107 Designs, and Instructions.

The Twelfth Gift.

The Thread.

The Thread-Game is not only an amusement but of actual use to the child; by means of the thread innumerable forms of knowledge, symmetry, and life can be produced.

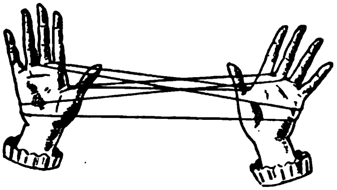
226. A package containing 10 yards scarlet and 10 yards blue Worsted; 5 yards blue and 5 yards yellow Cotton Thread. $0.20.

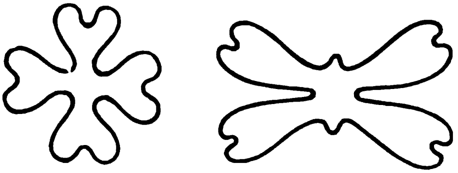
228. 12 wooden Pointers. $0.15.

229. 1 sponge for wetting and smoothing the thread. $0.15.

230. 1 Patent Wire-bound Kindergarten Slate, 8×12", grooved in $^{1}/_{4}$" squares, on one side. $0.25.

Diagrams and Directions for the use of the Twelfth Gift are contained in Kraus' *Guide*, Number Five. In paper. $0.70;
and, separately, on the special reprint therefrom: *The Twelfth Gift*. In paper. $0.30.





232. *Frœbel's Kindergarten Occupations for the Family.* No. 13. *Connected Slat* and *Thread Game*. In a paper box, with chromo-lithographed cover. $0.75.

This Box contains 1 set Connected Slats. With Designs and Instructions *(The Eighth Gift*, from Kraus' *Guide)*. 10 yards scarlet, and 10 yards blue Worsted; 5 yards blue and 5 yards yellow Cotton Thread. 1 piece of Oil-cloth and 2 wooden Pointers. With Designs and Instructions (*The Twelfth Gift*, from Kraus' *Guide)*.

The Thirteenth Gift.

The Point.

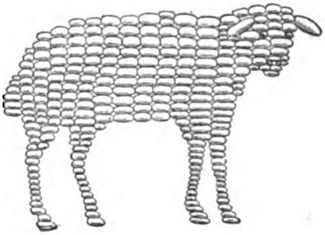
The aim of this Gift is to join the *seeds, shells, stones*, etc. to form lines, and with such lines again to form an unlimited variety of figures on the plane. It offers also a suitable opportunity to exercise small children in grouping and sorting the different material.

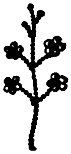
No. **240.** 1 pound of mixed *seeds*, of different sizes and colors. $0.25.

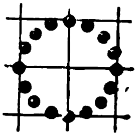
242. 100 small *shells* of different sizes and colors. $0.20.

244. Oil-cloth, 45" wide, marked off in *one inch* squares, @ $0.45 net per running foot.

Diagrams and Directions for the use of the Thirteenth Gift are contained in Kraus' *Guide*. Number Five. In paper. $0.70;
and, separately, in the special reprint therefrom: *The Thirteenth Gift*. In paper. $0.30.







246. *Frœbel's Kindergarten Occupations for the Family.* No. 14. *Point-laying*. In a paper box, with chromo-lithographed cover. $0.75.

This Box contains 500 Seeds, Shells, etc., of different sizes and colors. With Designs and Instructions *(The Thirteenth Gift*, from Kraus' *Guide)*.

The First Occupation.

Perforating (Pricking).

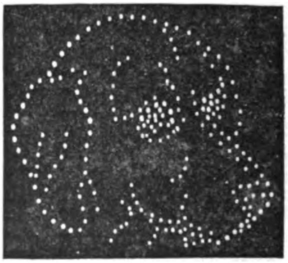
(Part of the material for the following, the Second Occupation — Sewing — may be used for this, and vice versa.)

251. 25 leaves of paper, 8$^{1}/_{2}$×11", ruled in $^{1}/_{4}$" squares, on one side. $0 15.

254. 1 quire *Perforating-Paper*, 17×22", ruled in $^{1}/_{4}$" squares, on one side. $0.60.

261. 25 leaves of paper, 8$^{1}/_{2}$×11", ruled in $^{1}/_{6}$" squares, on one side. $0.15.

262. 1 quire Perforating-Paper, 17×22", ruled in $^{1}/_{6}$" squares, on one side. $0.60.

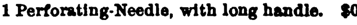


264. 25 leaves of paper, 8$^{1}/_{2}$×11", ruled in $^{1}/_{8}$" squares, on one side. $0.15.

265. 1 quire Perforating-Paper, 17×22", ruled in $^{1}/_{8}$" squares, on one side. $0 60.

266. 25 leaves of heavy white paper, 8$^{1}/_{2}$×11", net $0.12.

267. 1 quire heavy white paper, 17×22", net $0.40.



271. 1 Perforating-Needle, with long handle. $0.05.

272. 1 doz. Perforating-Needles, with long handles. $0.50.

(The First Occupation.)

No. **276.** 1 Perforating-Needle, with short handle. $0.05.

277. 1doz. Perforating-Needles, with short handles. $0.50.

(The Perforating-Needles may be had *fine*, *medium* and *coarse*. The kind desired should be mentioned in the order.)

281. 1 Perforating-Cushion, 7×9". $0.15.

282. 1 doz. Perforating-Cushions. $1.50.

284. 1 Perforating-Cushion, 7×9", of superior quality. $0.25.

285. 1 doz. Perforating-Cushions, 7×9", of superior quality. $2.50.

Diagrams: STEIGER's *Designs for Perforating*, arranged by J. KRAUS and M. KRAUS-BOELTE. 12 plates, in wrapper. $0.30.

Diagrams and Directions for the use of the First Occupations are contained in KRAUS' *Guide*, Number Six. In paper. $0.50;
and, separately, in the special reprint therefrom: *The First Occupation*. In paper. $0.30.

291. *Frœbel's Kindergarten Occupations for the Family.* No. 3. *Perforating (Pricking).* In a paper box, with chromo-lithographed cover. $0.75.

This Box contains 2 Perforating-Needles, 1 Perforating-Cushion, 10 leaves of paper ruled in 1/4" squares, 10 leaves of heavy white paper, 93 Designs, and Instructions.

The Second Occupation.

Sewing (Embroidering).

(Part of the material for the preceding, the First Occupation — Pricking — may be used for this, and vice versa.)

301. 25 leaves of white card board, 5×5 1/2", ruled in 1/4" squares, on one side, net $0.15.

301a. 25 leaves of white card-board, 5×5 1/2", ruled in 1/6" squares, on one side, net $0.15.

301b. 25 leaves of white card-board, 5×5 1/2", ruled in 1/8" squares, on one side, net $0.15.

302. 25 leaves of card board, 7×9", ruled in 1/4 squares, in one side, net $0.25.

303. 25 leaves of white card-board, 7×9", ruled in 1/6" squares, on one side, net $0.25.

304. 25 leaves of white card board, 7×9", ruled in 1/8" squares, on one side, net $0.25.

305. 1 sheet of white card-board, 22×28" (not ruled). $0.10.

306. 1 sheet of colored card-board, 22×28". $0.10.

307. 1 sheet of white card-board, 22×28", ruled in 1/4" squares, net $0.15.

309. 25 leaves of white card-board, 5×5 1/2" (not ruled), net $0.12.

311. 12 leaves of white card-board, 7×9", (not ruled), net $0.15.

311a. 25 sheets tinted Bristol, assorted tints, 5×5 1/2", ruled in 1/4" squares, on one side, net $0.15.

312. 25 sheets tinted Bristol, assorted tints, 5×5 1/2", ruled in 1/5" squares, on one side, net $0.15.

313. 25 sheets tinted Bristol, assorted tints, 5×5 1/2", ruled in 1/6" squares, on one side, net $0.15.

315. 25 sheets tinted Bristol, assorted tints, 7×9", ruled in 1/4" squares, on one side, net $0.25.

316. 25 sheets tinted Bristol, assorted tints, 7×9", ruled in 1/5 squares, on one side, net $0.25.

317. 25 sheets tinted Bristol, assorted tints, 7×9", ruled in 1/6" squares, on one side, net $0.25.

No. **318.** 1 sheet of tinted Bristol, 22×28", ruled in 1/4", or 1/5", or 1/6" squares, on one side, net $0.20.

321. 25 leaves of thick blotting-paper, 7×9", net $0.20.

324. 50 leaves (7×11") of thin white paper for sketching, net $0.15.

331. 1 dozen Worsted-Needles, assorted thicknesses. In wrapper, net $0.12.

332. 1 dozen Worsted-Needles, either No. 4 or 23, etc. In wrapper, net $0.12.

341. A package containing Worsted of 12 different colors, and 3 Worsted-Needles, net $0.20.

343. A package containing Worsted of 24 different colors, and 6 Worsted-Needles, net $0.40.

345. 1 ounce of Worsted of any color. In wrapper, net $0.20 to $0.25.

346. A package containing Embroidering-Silk of 12 different colors, and 3 Needles, net $0.35.

348. A package containing Embroidering-Silk of 24 different colors, and 6 Needles, net $0.70.

350. A bunch containing 25 strands of Embroidering-Silk, of any color. In wrapper, net $0.35 to $0.40.

STEIGER's Large *Embroidering Pictures*, each package containing 12 plates, 6×8", in wrapper:

361. No. 1. Miscellaneos objects — easy. $0.35.
362. „ 2. „ „ — „ $0.35.
363. „ 3. „ „ — „ $0.35.
364. „ 4. „ „ — less easy. $0.35.
365. „ 5. „ „ — „ „ $0.35.
366. „ 6. „ „ — „ „ $0.35.
367. „ 7. „ „ — „ „ $0.35.
368. „ 8. „ „ — „ „ $0.35.
369. „ 9. „ „ —rather difficult. $0.35.
370. „ 10. „ „ — „ „ $0.35.
371. „ 11. „ „ — „ „ $0.35.
372. „ 12. „ „ — „ „ $0.35.
373. „ 13. Animals. $0.35.
374. „ 14. „ $0.35.
375. „ 15. Birds. $0.35.
376. „ 16. „ $0.35.
377. „ 17. Flowers and Fruits. $0.35.
378. „ 18. „ „ „ $0.35.
379. „ 19. Scripture Texts. $0.35.
380. „ 20. „ „ $0.35.

STEIGER's Small *Embroidering Pictures*, each package containing 12 plates, 4 1/2×5 1/2", in wrapper:

391. No. 1. Miscellaneous objects. $0.25.
392. „ 2. „ „ $0.25.
393. „ 3. „ „ $0.25.
394. „ 4. „ „ $0.25.
395. „ 5. „ „ $0.25.
396. „ 6. „ „ $0.25.
397. „ 7. Birds. $0.25.
398. „ 8. Animals. $0.25.
399. „ 9. Flowers. $0.25.

400. One package containing 12 shaded Pictures — Groups of Children — 6×8", outlined in colors, for Perforating and Sewing. $0.45.

Diagrams: STEIGER's *Designs for Embroidering*, arranged by J. KRAUS and M. KRAUS-BOELTE, 12 plates in wrapper, $0.30.

Diagrams and Directions for the use of the Second Occupation are contained in KRAUS' *Guide*. Number Six. In paper, $0.50;
and, separately, in the special reprint therefrom: *The Second Occupation*. In paper. $0.30.

(We do not supply *pricked* Sewing Cards, at it is *not in accordance* with the idea of Frœbel to put the cards *already perforated* into the hands of the children.)

(The Second Occupation.)
No. **401.** *Frœbel's Kindergarten Occupations for the Family.* No. 5. *Embroidering.* In a paper box, with chromo-lithographed cover. $0.75.

This Box contains Worsted of 12 different colors, 3 Worsted-Needles, 1 Perforating-Needle, 10 pieces of fine board, ruled on one side, one piece of blotting-paper, 10 leaves of white paper, 136 Designs, and Instructions.

The Third Occupation.

Net-work Drawing.

414. 1 Kindergarten Slate (imported, No. 12), 10×13½" grooved in ¼" squares, on one side. $0.30.
(☞ No. **411.** Slate [imported, No. 4] is not to be had any more.)
421. 1 Patent Wire-bound Kindergarten Slate, 5×7", grooved in ¼" squares, on one side. $0.15.
423a. 1 Patent Wire-bound Slate, 6×9", grooved in ¼" squares, on one side. $0.20.
424. 1 Patent Wire-bound Kindergarten Slate, 7×11", grooved in ¼" squares, on one side. $0.20.
425. 1 Patent Wire-bound Kindergarten Slate, 8×12", grooved in ¼" squares, on one side. $0.25.
431. 1 dozen artificially prepared Slate pencils, net $0.12.
432. 100 artificially prepared slate pencils, in box, net $0.85.
433. 1 doz. Kindergarten Drawing-books, each with 12 leaves, 10×8", ruled in ¼" squares, on both sides, net $.80.
434. 1 doz. Kindergarten Drawing-books, each with 12 leaves, 10×8", ruled in ⅕" squares, on both sides, net $0.80.
435. 1 doz. Kindergarten Drawing-books, each with 12 leaves, 10×8", ruled in ⅙" squares, on both sides, net $0.80.
441. 1 doz. Kindergarten Drawing-books, each with 12 leaves, 7×8½", ruled in ¼" squares, on both sides, net $0.70.
443. 1 quire Kindergarten Drawing-paper, 14×17", ruled in ¼" squares, on both sides, net $0.40.
446. 1 doz. Kindergarten Drawing-books, each with 12 leeves, 7×8½", ruled in ⅙" squares, on both sides, net $0.70.
447. 1 doz. Kindergarten Drawing books, each with 12 leaves, 7×8½", ruled in ⅛" squares, on both sides, net $0.70.
448. 1 quire Kindergarten Drawing-paper, 14×17", ruled in ⅙" squares, on both sides, net $0.40.
450. 1 doz. leaves Kindergarten Drawing paper, 8½×11", ruled *diagonally* in ¼" equilateral triangles. $0.50.
451. 1 quire Kindergarten Drawing-paper, 14×17", ruled in ⅛" squares, on both sides, net $0.40.
452. 1 quire Kindergarten Drawing paper, 14×17", ruled in ½" squares, on both sides, net $0.40.

Drawing-Books for Teachers.

(Interleaved with Tissue Paper.)

452a. 1 Kindergarten Drawing-book with 48 pages, 10×8", ruled in ⅕" squares, on both sides. Boards, net $0.35.
453. 1 Kindergarten Drawing-book with 48 pages, 10×8", ruled in ⅙" squares, on both sides. Boards, net $0.35.
454. 1 Kindergarten Drawing-book with 48 pages, 10×8", ruled in ⅛" squares, on both sides. Boards, net $0.35.
(These Drawing-books are also to be had with 96 pages each, net @ $0.65.)

No. **461.** 1 dozen common Lead pencils, net $0.25.
462. 1 dozen fine Lead pencils, net 0.75.
463. 1 colored Wax Crayon (of any color or shade), net $0.12.
464. A box of 6 colored Wax Crayons of primary and secondary colors, net $0.80.
465. A box of 12 colored Wax Crayons, assorted, net $1.50.
466. A box of 18 colored Wax Crayons, assorted, net $2.00.

Diagrams: Steiger's *Designs for Net-work Drawing*, arranged by J. Kraus and M. Kraus-Boelté, 12 plates, in wrapper. $0.30.

New Drawing Lessons for children. 2 parts, each containing 10 Designs and paper, in wrapper:
No. 1. Groups of children. $0.30.
No. 2. Animals. $0.30.

K. Frœbel. *Elements of Designing on the Developing System for Elementary School Classes, and for Families.* 4 Parts, each containing 24 pages, ruled in squares, with designs and space for copying, and for the compositions, combinations, and inventions of the pupil.
Part. 1. 2. 3. Straight Lines and their combinations, each $0.35.
Part. 4. Circles and Curved Lines, and their combinations. $0.35.

Wagner's *Outline Drawings for the Self-Instruction and Amusement of Children*, 9 Parts.
No. 1. 2. Straight Lines and their combinations, each $0.25.
No. 3. 4. Curved Lines and their combinations, each $0.25.
No. 5. Arabesques. $0.25.
No. 6. Buildings. $0.25.
No. 7. 8. 9. Animals, each $0.25.

Diagrams and Directions for the use of the Third Occupation are contained in Kraus' *Guide.* Number Seven. In paper. $1.20.
and separately, in the special reprint therefrom:
The Third Occupation. In paper. $0.50.

471. *Frœbel's Kindergarten Occupations for the Family.* No. 2. *Net-work Drawing.* In a paper box, with chromo-lithographed cover. $0.75.

This Box contains a Slate grooved in ¼" squares, on one side, 3 Slate pencils, 93 Designs, and Instructions.

The Fourth Occupation.

Coloring and Painting.

Winsor & Newton's Water Colors, in Half-Cakes.

473. 1 half cake Red (Vermilion), net $0.18.
475. 1 half cake New Blue, net $0.18.
477. 1 half cake Yellow (Chrome), net $0.18.
By mixing the above Primary colors, the Secondary colors: purple, green, and orange, will be produced.
479. A package containing 1 half cake of each of the 3 primary colors, net $0.55.
481. 1 package containing 12 Camel's-*hair Brushes* with round polished handles, tin ferrules, (assorted No. 1 to 6), net $0.75.
483. 1 package containing 6 Camel's-hair Brushes with round polished handles, tin ferrules, either No. 1, 2, or 3, net $0.30.
484. 1 package containing 6 Camel's-hair Brushes with round polished handles, tin ferrules, either No. 4, 5, or 6, net $0.50.
485. 1 doz. fine Lead-pencils, net $0.75.

(The Fourth Occupation.)

No. 487. 1 divided *Slant*, 3 divisions. $0.25.

488. 1 divided Slant, 6 divisions. $0.50.

490. 1 *Water-glass*, net $0.15.

492. 1 doz. Water-glasses, net $1.50.

493. 1 doz. *Exercise-books*, 11×9", ruled in 1/2" squares, interleaved with Tissue paper, net $1.50.

494. 1 quire paper, ruled in 1/2" squares, net $0.75.

495. 1 quire paper, ruled in 3/8" (=1 centimeter) squares, net $0.75.

Diagrams and Directions for the use of the Fourth Occupation are contained in Kraus' *Guide.* Number Seven. In paper. $1.20.
and, separately, in the special reprint therefrom:
The Fourth Occupation. In paper. $0.20.

Steiger's Designs for Coloring and Painting arranged by M. Kraus-Boelte and J. Kraus. 83 chromo-lithographed Designs on 12 plates, in wrapper. $0.75.

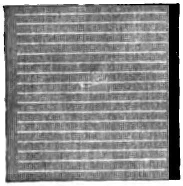
498. *The Kindergarten Painting Box.* In a cherry-wood box, with chromo-lithographed cover, net $3.00.

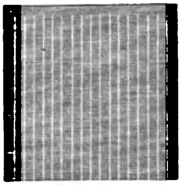
Contains: 1 Half-cake (Winsor & Newton's) of each of the 3 *Primary* Water Colors (*red, blue,* and *yellow,* suitable for producing, by mixing, the *Secondary* colors (*purple, green* and *orange*), 1 half-cake each *white* and *black*, 6 Camel's-hair Brushes, 6 colored Wax-Crayons (*red, blue* and *yellow*; *purple, green* and *orange*), 1 Lead-pencil, 12 leaves of heavy paper ruled on one side, in 1/2" squares, and 12 leaves ruled in 3/8" (= 1 centimeter) squares, 1 Slant, 83 chromo-lithographed Designs, and Instructions (Kraus' *Coloring and Painting*).

The Fifth Occupation.

Mat-plaiting (Weaving, Braiding).

Strips of colored paper are, by means of a steel or wooden needle of peculiar construction, woven into another (differently colored) leaf of paper, which is cut into strips throughout its entire surface, except that a margin is left at each end to keep the strips in their places. A very great variety of designs is thus produced, and the inventive powers of teacher and pupil are constantly stimulated.





501. 1 doz. *Weaving-Mats*, 7×7", slits 1/2" apart, *black* and *white;* strips 1/2" wide, *red.* $0.15.

502. 1 doz. W.-M., 7×7", slits 1/2", *black* and *white;* strips 1/2", *blue.* $0.15.

503. 1 doz. W.-M., 7×7", slits 1/2", *black* and *white;* strips 1/2", *yellow.* $0.15.

504. 1 doz. W.-M., 7×7", slits 1/2", *black* and *white;* strips 1/2", *purple.* $0.15.

505. 1 doz. W.-M., 7×7", slits 1/2", *black* and *white;* strips 1/2", *green,* $0.15.

506. 1 doz. W.-M., 7×7", slits 1/2", *black* and *white;* strips 1/2", *orange.* $0.15.

507. 1 doz. W.-M., 7×7", slits 1/2 *primary* and *secondary* colors (*red, blue, yellow, purple, green,* and *orange*); strips 1/2", *primary* and *secondary* colors. $0.15.

No. 508. 1 doz. W.-M., 7×7", slits 1/2", *tertiary* colors, *tints* and *shades;* strips 1/2", *tertiary* colors, *tints* and *shades.* $0.15.

511. 1 doz. W.-M., 7×7", slits 1/3", *black* and *white;* strips 1/3", *red.* $0.15.

512. 1 doz. W.-M., 7×7", slits 1/3", *black* and *white;* strips 1/3", *blue.* $0.15.

513. 1 doz. W.-M., 7×7", slits 1/3", *black* and *white;* strips 1/3", *yellow.* $0.15.

514. 1 doz. W.-M., 7×7", slits 1/3", *black* and *white;* strips 1/3", *purple.* $0.15.

515. 1 doz. W.-M., 7×7", slits 1/3", *black* and *white;* strips 1/3", *green.* $0.15.

516. 1 doz. W.-M., 7×7", slits 1/3", *black* und *white;* strips 1/3", *orange.* $0.15.

517. 1 doz. W.-M., 7×7", slits 1/3", *primary* and *secondary* colors (*red, blue, yellow, purple, green,* and *orange*); strips 1/3", *primary* and *secondary* colors. $0.15.

518. 1 doz. W.-M., 7×7", slits 1/3", *tertiary* colors, *tints* and *shades;* strips 1/3", *tertiary* colors, *tints* and *shades.* $0.15.

521. 1 doz. W.-M., 7×7", slits 1/4", *primary* and *secondary* colors (*red, blue, yellow, purple, green,* and *orange*); strips 1/4", *black* and *white.* $0.15.

522. 1 doz. W.-M., 7×7", slits 1/4", *tertiary* colors, *tints* and *shades;* strips 1/4", *tertiary* colors, *tints* and *shades.* $0.15.

531. 1 doz. W.-M., 7×7", slits 1/6", *black* and *white;* strips 1/6", *primary* colors (*red, blue,* and *yellow*). $0.15.

532. 1 doz. W.-M., 7×7", slits 1/6", *black* and *white;* strips 1/6", *secondary* colors (*purple, green,* and *orange*); $0.15.

533. 1 doz. W.-M., 7×7", slits 1/6", *tertiary* colors, *tints* and *shades;* strips 1/6", *tertiary* colors, *tints* and *shades.* $0.15.

543. 1 doz. W.-M., 7×7", slits 1/8", *tertiary* colors, *tints* and *shades;* strips 1/8", *tertiary* colors, *tints* and *shades.* $0.15.

543a. 1 doz. W.-M., 7×7", slits 1/12", *tertiary* colors, *tints* and *shades;* strips 1/12", *tertiary* colors, *tints* and *shades.* $0.15.

544. 1 doz. W.-M., 7×7", slits 1 wide (1/2"), 1 narrow (1/6"), alternately, *tertiary* colors, *tints* and *shades;* strips matching slits in cut and color. $0.15.

551. 1 doz. W.-M., 7×7", slits 1 wide (3/4"), 1 narrow (1/4"), alternately, *white* and *black;* strips 1 wide (3/4"), 1 narrow (1/4"), alternately, *red.* $0.15.

552. 1 doz. W.-M., 7×7", slits 1 wide (3/4"), 1 narrow (1/4"), alternately. *white* and *black;* strips 1 wide (3/4"), 1 narrow (1/4"), alternately, *blue.* $0.15.

553. 1 doz. W.-M., 7×7", slits 1 wide (3/4"), 1 narrow (1/4"), alternately, *white* and *black;* strips 1 wide (3/4"), 1 narrow (1/4"), alternately, *yellow.* $0.15.

554. 1 doz. W.-M., 7×7", slits 1 wide (3/4"), 1 narrow (1/4"), alternately, *primary* and *secondary* colors; strips *primary* and *secondary* colors. $0.15.

555. 1 doz. W.-M., 7×7", slits 1 wide (3/4"), 1 narrow (1/4"), alternately, *tertiary* colors, *tints* and *shades;* strips matching slits in cut and color. $0.15.

556. 1 doz. W.-M., 7×7" slits 1 wide (3/8") 1 narrow (1/8"), apart, alternately, *tertiary* colors, *tints* and *shades,* strips matching slits in cut and colors. $0.15.

561. 1 doz. W.-M., 7×7", slits 1 wide (3/4") and 2 narrow (each 1/4), alternately, *white* and *black;* strips cut to match, *purple.* $0.15.

562. 1 doz. W.-M., 7×7", slits 1 wide (3/4") and 2 narrow (each 1/4"), alternately, *white* and *black;* strips cut to match, *green.* $0.15.

(The Fifth Occupation.)

No. 563. 1 doz. W.-M., 7×7", slits 1 wide (3/4") and 2 narrow (each 1/4"), alternately, *white* and *black*; strips cut to match, *orange*. $0.15.

564. 1 doz. W.-M., 7×7", slits 1 wide (3/4" apart) and 2 narrow (each 1/4" apart), alternately, *tertiary* colors, *tints* and *shades*; strips matching slits in cut and color. $0.15.

565. 1 doz. W.-M., 7×7", slits 1 wide (2/3" apart) and 2 narrow (each 1/6" apart), alternately, *tertiary* colors, *tints* and *shades*; strips matching slits in cut and color. $0.15.

566. 1 doz. W.-M., 7×7", slits 1 wide (3/4" apart, and 2 narrow (each 1/8" apart, alternately, *tertiary* colors, *tints* and *shades*; strips matching slits in cut and color. $0.15.

571. 1 doz. W.-M., 7×7", slits 1 wide [(3/4") and 3 narrow (each 1/4"), alternately, *white* and *black*; strips cut to match, *red*. $0.15.

572. 1 doz. W.-M., 7×7", slits 1 wide (3/4") and 3 narrow (each 1/4"), alternately, *white* and *black*; strips cut to match, *blue*. $0.15

573. 1 doz. W.-M., 7×7", slits 1 wide (3/4") and 3 narrow (each 1/4"), alternately, *white* and *black*; strips cut to match, *yellow*. $0.15.

574. 1 doz. W.-M., 7×7", slits 1 wide (3/4") and 3 narrow (each 1/4), alternately, *white* and *black*; strips cut to match, *purple*. $0.15.

575. 1 doz. W.-M., 7×7", slits 1 wide (3/4") and 3 narrow (each 1/4"), alternately, *white* and *black*; strips cut to match, *green*. $0.15.

576. 1 doz. W.-M., 7×7", slits 1 wide (3/4") and 3 narrow (each 1/4"), alternately, *white* and *black*; strips cut to match, *orange*. $0.15.

577. 1 doz. W.-M., 7×7", slits 1 wide (3/4" apart) and 3 narrow (each 1/4" apart), alternately, *tertiary* colors, *tints* and *shades*; strips matching slits in cut and color. $0.15.

578. 1 doz. W.-M., 7×7", slits 1 wide (5/8" apart) and 3 narrow (each 1/8" apart), alternately, *tertiary* colors, *tints* and *shades*; strips matching slits in cut and color. $0.15.

579. 1 doz. W.-M., 7×7", slits 1 wide (1/2" apart) and 3 narrow (each 1/6" apart), alternately, *tertiary* colors, *tints* and *shades*; strips matching slits in cut and color. $0.15.

581. 1 doz. W.-M., 7×7", the 2 central slits 1" apart, the distance between the others gradually narrowing towards both sides, so that the first and the last slits are only 1/4" apart from the next before, *tertiary* colors, *tints* and *shades*; strips cut to match, *black* and *white*. $0.15.

583. 1 doz. W.-M., 7×7", the 2 central slits 3/4" apart, the distance between the others gradually narrowing towards both sides, so that the first and the last slits are only 1/4" apart from the next before, *light-blue*; strips cut to match, *bronze*. $0.15.

584. 1 doz. W.-M., 7×7", the 2 central slits 3/4" apart, the distance between the others gradually narrowing towards both sides, so that the first and the last slits respectively are each only 1/4" apart from those next before, *tertiary* colors, *tints* and *shades*; strips matching slits in cut and colors. $0.15.

586. 1 doz. W.-M., 7×7", the 2 central slits 1/4" apart, the others gradually widening towards the sides, so that the first and the last slits are each 1" apart from the next before, *tertiary* colors, *tints* and *shades*; strips cut to match, *black* and *white*. $0.15.

588. 1 doz. W.-M., 7×7", the 2 central slits 1/6" apart, the others gradually widening towards the sides, so that the first and the last slits are each 3/4" apart from the next before, *pink*; strips cut to match, *bronze*. $0.15.

No. 589. 1 doz. W.-M., 7×7", the 2 central slits 1/6" apart, the distance between the others gradually widening towards the sides, so that the first and the last slits respectively are each 3/4" apart from those next before, *tertiary* colors, *tints* and *shades*; strips matching slits in cut and color.

601. 1 doz. W.-M., 7×5", slits 1/2" apart, *primary* and *secondary* colors *(red, blue, yellow, purple, green, orange)*; strips 1/2", *black* and *white*. $0.15.

602. 1 doz. W.-M., 7×5", slits 1/2" apart, *tertiary* colors *tints* and *shades*; strips matching slits in cut and color. $0.15.

611. 1 doz. W.-M., 7×5", slits 1/3", *primary* colors *(red, blue, yellow)*; strips 1/3", *black* and *white*. $0.15.

612. 1 doz. W.-M., 7×5", slits 1/3", *secondary* colors *(purple, green, orange)*; strips 1/3", *black* and *white*. $0.15.

613. 1 doz. W.-M., 7×5", slits 1/3", *tertiary* colors, *tints* and *shades*; strips matching slits in cut and color. $0.15.

621 1 doz. W.-M., 7×5", slits 1/4", *primary* and *secondary* colors *(red, blue, yellow, purple, green,* and *orange)*; strips 1/4", *black* and *white*. $0.15.

622. 1 doz. W.-M., 7×5", slits 1/4", *tertiary* colors. *tints* and *shades*; strips matching slits in cut and color $0.15.

631. 1 doz. W.-M., 7×5", slits 1/6", *primary* colors *(red, blue, yellow)*; strips 1/6", *black* and *white*. $0.15.

632. 1 doz. W.-M., 7×5", slits 1/6", *secondary* colors *(purple, green* and *orange)*; strips 1/6", *black* and *white*. $0.15.

633. 1 doz. W.-M., 7×5", slits 1/6", *tertiary* colors *tints* and *shades*; strips matching slits in cut and color. $0.15.

641. 1 doz. W.-M., 7×5", slits 1/8", *primary* and *secondary* colors, strips matching slits in cut and color. $0.15.

642. 1 doz. W.-M., 7×5", slits 1/8", *tertiary* colors. *tints* and *shades*, strips matching slits in cut and color. $0.15.

652. 1 doz. W.-M., 7×5", slits 1/12", *tertiary* colors. *tints* and *shades*; strips matching slits in cut and colors. $0.15.

653. 1 doz. W.-M., 7×5", slits 1 wide (1/2"), 1 narrow (1/6"), alternately, *tertiary* colors, *tints* and *shades*; strips matching slits in cut and color. $0.15.

661. 1 doz. W.-M., 7×5", slits wide (3/4") and narrow (1/4"), alternately, *primary* colors *(red, blue, yellow)*; strips cut to match, *black* and *white*. $0.15.

662. 1 doz. W. M., 7×5", slits 1 wide (3/4" apart) and 1 narrow (1/4" apart), alternately, *tertiary* colors, *tints* and *shades*; strips matching slits in cut and color. $0.15.

663. 1 doz. W.-M., 7×5", slits wide (2/3") and narrow (1/3"), alternately, *white*; strips cut to match, *red*. $0.15.

664. 1 doz. W.-M., 7×5", slits wide (2/3") and narrow (1/3"), alternately, *white*; strips cut to match, *blue*. $0.15.

665. 1 doz. W. M., 7×5", slits 1 wide (2/3") and narrow (1/3"), alternately, *white*; strips cut to match, *yellow*. $0.15.

666. 1 doz. W.-M., 7×5", slits 1 wide (2/3" apart) and 1 narrow (1/3" apart) alternately, *tertiary* colors, *tints* and *shades*; strips matching slits in cut and color. $0.15.

667. 1 doz. W.-M., 7×5", slits 1 wide (3/4" apart) and 2 narrow (each 1/4" apart), alternately, *tertiary* colors, *tints* and *shades*, strips matching slits in cut and color. $0.15.

671. 1 doz. W.-M., 7×5", slits 1 wide (2/3") and 2 narrow (each 1/6"), alternately, *black*; strips cut to match, *purple*. $0.15.

672. 1 doz. W.-M., 7×5", slits 1 wide (2/3") and 2 narrow (each 1/6"), alternately, *black*; strips cut to match, *green*. $0.15.

(The Fifth Occupation.)

No. 673. 1 doz. W.-M., 7×5", slits 1 wide (2/3") and 2 narrow each 1/6"), alternately, *black;* strips cut to match, *orange.* $0.15.

674. 1 doz. W.-M., 7×5", slits 1 wide (2/3" apart) and 2 narrow (each 1/6" apart) alternately, *tertiary* colors, *tints* and *shades;* strips matching slits in cut and color. $0.15.

675. 1 doz. W.-M., 7×5", slits 1 wide (3/4") and 2 narrow (each 1/8"), alternately, *secondary* colors *(purple, green, orange);* strips cut to match, *black* and *white.* $0.15.

676. 1 doz. W.-M., 7×5", slits 1 wide (3/4" apart), and 2 narrow (each 1/8" apart), alternately, *tertiary* colors, *tints* and *shades;* strips matching slits in cut and color. $0.15.

677. 1 doz W.-M., 7×5", slits 1 wide (3/4" apart), and 3 narrow (each 1/4" apart), alternately, *tertiary* colors, *tints* and *shades;* strips matching slits in cut and color. $0.15.

681. 1 doz. W.-M., 7×5", slits 1 wide (1/2"), and 3 narrow (each 1/6"), alternately, *primary* and *secondary* colors; strips cut to match, *black* and *white.* $0.15.

683. 1 doz. W.-M., 7×5", slits 1 wide (1/2"), and 3 narrow (each 1/6"), alternately, *tertiary* colors, *tints* and *shades*; strips matching slits in cut and colors. $0.15.

685. 1 doz. W.-M., 7×5", slits 1 wide (1/2"), and 3 narrow (each 1/6"), alternately, *red;* strips cut to match, *purple.* $0.15.

687. 1 doz. W.-M., 7×5", slits 1 wide (5/8"), and 3 narrow (each 1/8"), alternately, *purple;* strips cut to match, *green.* $0.15.

688. 1 doz. W.-M., 7×5", slits 1 wide (5/8"), and 3 narrow (each 1/8"), alternately, *green;* strips cut to match, *orange.* $0.15.

689. 1 doz. W.-M., 7×5", slits 1 wide (5/8" apart), and 3 narrow (each 1/8" apart), alternately, *tertiary* colors, *tints* and *shades*; strips matching slits in cut and color. $0.15.

693. 1 doz. W.-M., 7×5", the 2 central slits 1/6" apart, the distance between the others gradually widening towards the sides, so that the first and the last slits respectively are each 3/4" apart from those next before, *tertiary* colors, *tints* and *shades*; strips matching slits in cut and colors. $0.15.

701. 1 doz. W.-M., 5×5", slits 1/2", *red;* strips 1/2" wide, *white* and *blue.* $0.12.

706. 1 doz. W.-M., 5×5", slits 1/2", *blue;* strips 1/2" wide, *white* and *red.* $0.12.

708. 1 doz. W.-M., 5×5", slits 1/2" apart, *primary* and *secondary* colors *(red, blue, yellow, purple, green, orange);* strips matching slits in cut and colors. $0.12.

710. 1 doz. W.-M., 5×5", slits 1/4", *tertiary* colors, *tints* and *shades;* strips matching slits in cut and colors. $0.12.

712. A package containing Weaving Material, Sticks and Frame for a basket. $0.25.

713. A package containing Weaving Material, Sticks and a Frame for a large basket of gold or silver cardboard. $0.50.

NOTICE.—The Weaving-Mats enumerated in this *Catalogue of Steiger's Kindergarten Material* have been cut and made up systematically according to the directions of Mrs. Kraus-Bœlte. These styles (Nos. 501 to 710) **are always kept on hand,** in glazed paper of the colors specified, at the price of 15 cents a packet (each packet containing a dozen mats and a dozen strips).

In case other Weaving-Mats are desired of a particular cut, or made up of a particular selection of colors which are not already enumerated in *Steiger's Catalogue,* they will be cut and put up to order, upon customers indicating precisely the „cut" and „colors" desired, according to the samples given in No. 758 *(Steiger's Samples of Weaving-Mats and Cuts),* and No. 759 *(Steiger's Samples of Coated Papers).*

Mats can likewise be cut in the sizes 7×6. and 6 1/2×6 1/2".

Proportionate to the extra labor and expense necessitated the prices of such Weaving-Mats cut to order are as follows (for each particular kind, in one order):

	of common glazed paper	with silver paper	with gold paper
1 doz. of each kind	net $0.30	net $0.35	net $0.50
2 „ „ „ „	net $0.50	net $0.60	net $0.90
3 „ „ „ „	net $0.65	net $0.80	net $1.25
6 „ „ „ „	net $0.90	net $1.20	net $2.10

No. 715. 1 doz. Wrappers to protect the Mats from creasing when left unfinished in the Kindergarten, or at home. $0.50.

717. 1 quire of colored Tissue-paper. $0.20.

758. *Steiger's Samples of Weaving-Mats Cuts,* net $0.10.

759. *Steiger's Samples of Coated-Papers* used in Weaving and Braiding (will be mailed to any Kindergartner free on application).

761. 1 doz. wooden Weaving-Needles, 11" long. $0.30.

762. 1 doz. wooden Weaving-Needles, 7" long. $0.25.

765. 1 Patent Steel Weaving-Needle. $0.06.

766. 1 doz. Patent Steel Weaving-Needles, net $0.60.

771. A package containing material for book-marks; strips 1/8" wide, of glazed paper. $0.10.

771a. A package containing material for book-marks, strips 1/6" wide, of glazed paper. $0.10.

772. A package containing material for book-marks; strips 1/4" wide, of glazed paper. $0.10.

773. A package containing material foor bock-marks; strips 3/8" wide, of glazed paper. $0.10.

774. Diagrams for book-marks, 6 plates, in wrapper. $0.30.

Steiger's *Designs for Weaving,* arranged by J. Kraus and M. Kraus-Bœlte, 12 plates, in wrapper. $0.30.

791. *Frœbel's Kindergarten Occupations for the Family.* No. 4. *Weaving (Braiding).* In a paper box, with chromo-lithographed cover. $0.75.

Colored wooden Balls, Papers, and Straws for Stringing.

775. 500 disks of colored paper, 1" diameter, for stringing with straws. $0.15.

777. 500 squares of colored paper, 1" square. $0.12.

779. 100 straws, about 10" long, assorted colors, net $0.12.

781. 100 straws, about 14" long, assorted colors, net $0.15.

783. 100 straws, about 10" long, *white,* net $0.10.

785. A box containing 144 wooden balls, 1/2" diameter, in *primary* and *secondary* colors. $0.40.

786. A box containing 144 wooden balls, 1/4" diameter, in *primary* and *secondary* colors. $0.40.

787. A box containing 144 wooden beads, consisting of 1/4" balls, cubes, and cylinders, assorted an in *primary* and *secondary* colors. $0.40.

788. A box containing 144 wooden beads, consisting of 1/2" balls, cubes and cylinders, assorted and in *primary* and *secondary* colors. $0.40.

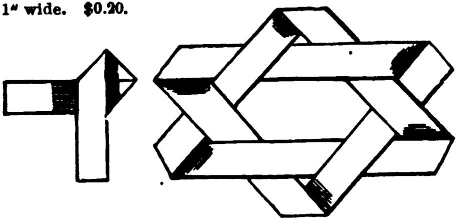
The Sixth Occupation.

Paper-interlacing (Intertwining).

Paper strips of various colors, lengths, and widths, folded lengthwise, are used to represent a variety of geometrical as well as fancy forms by plaiting them according to certain rules.

No. 801. 100 paper strips of different widths, and colors. $0.20.

804. 100 paper strips, white and colored, 20″ long and 1″ wide. $0.20.



805. 100 paper strips, white and colored, 20″ long and ½″ wide. $0.15.

806. 100 *glazed* paper strips of different widths, and colors. $0.25.

808. 100 *glazed* paper strips, 20″ long and 1″ wide. $0.25.

810. 100 *glazed* paper strips, 20″ long and ½ wide. $0.20.

Diagrams: Steiger's *Designs for Intertwining Paper*, arranged by J. Kraus and M. Kraus-Bœlte, 12 plates, in wrapper. $0.30.

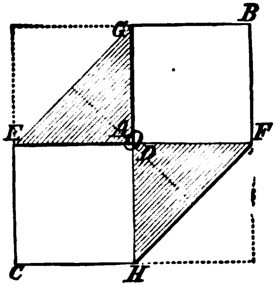
811. *Frœbel's Kindergarten Occupations for the Family.* No. 9. *(Intertwining.)* In a paper box, with chromo-lithographed cover. $0.75.

This Box contains 100 paper strips, white and colored, 55 Designs, and Instructions.

The Seventh Occupation.

Paper-folding.

The material for paper-folding consists of square, rectangular, and triangular pieces, with which variously shaped objects are formed, and the elements of geometry are taught in a practical manner. The variety is endless and prepares the pupil for many similar and useful manual performances in practical life.



821. 100 leaves of strong *white* paper, 4″ square. $0.10.

822. 100 leaves of colored paper, 4″ square (assorted colors). $0.12.

823. 100 leaves of paper, 4″ square, any special color. $0.20.

823a. 100 leaves of white and colored paper, 4″ square. $0.12.

824. 100 leaves of colored paper (assorted colors), 4×2″. $0.10.

828. 100 leaves of *white* paper—equilateral triangles, sides 4″ long. $0.15.

830. 100 leaves of colored paper—equilateral triangles, sides 4″ long (assorted colors). $0.20.

831. *Steiger's Samples of engine colored Papers* used in Paper-folding.

(The above (No. 831) will be mailed gratis on application.)

833. A wooden Paper-Folder. $0.06.

834. 1 doz. wooden Paper-Folders. $0.60.

Diagrams for Paper-folding. $0.30.

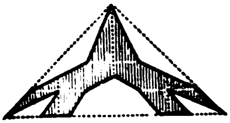
No. **835.** *Frœbel's Kindergarten Occupations for the Family.* No. 18. *(Paper-folding.)* In a paper box, with chromo-lithographed cover. $0.75.

This Box contains 100 leaves of white and colored paper, 20 leaves of strong Manila paper, one wooden Paper-Folder, 54 Designs and Instructions.

The Eighth Occupation.

Paper-cutting, Paper-mounting, and Silhouetting.

Squares or triangles of paper are folded, cut according to certain rules, and formed into figures. The child's inclination for using the scissors is here so ingeniously turned to account as to produce very gratifying results.



843. 100 leaves of *glazed* paper (assorted colors), 4″ square. $0.20.

845. 100 leaves of *glazed* paper, white and colored, 4″ square. $0.20.

846. 100 leaves of *glazed* paper, 4″ square, any special color. $0.25.

847. 100 leaves of gold or silver paper, 4″ square. $0.50.

848. 100 equilateral triangles of *glazed* paper (assorted colors), sides 4″ long. $0.25.

849. 100 hexagons of *glazed* paper (assorted colors), sides 2¼″ long. $0.30.

851. A pair of scissors with rounded blades, for paper cutting, net $0.30.

852. 1 doz. pair of scissors, with rounded blades, net $3.00.

855. 20 leaves of strong ultramarine paper, for mounting the cut figures. net $0.15.

856. 20 leaves of strong Manila paper, for mounting the cut figures, net $0.12.

Very desirable und useful for preserving Kindergarten work are:

***Steiger's Leporello Books** and also*
Steiger's Kindergarten Paper Frames

(Passe partout) for the suitable and convenient exhibition, on the wall or elsewhere, of children's work in **Perforating, Embroidering, Drawing, Weaving** (**Mat-plaiting**), **Paper-interlacing, Paper-folding, Paper-cutting,** etc.

857. A book of continuous folding sheets for mounting the cut figures (9×7½″), 24 pages of strong Manila paper. In boards, net $0.25.

858. 1 doz. books of continuous folding sheets for mounting the cut figures (9×7½″), 24 pages of strong Manila paper. In boards, net $2.50.

859. A book of continuous folding sheets for mounting the cut figures (9×7½″), 48 pages of strong Manila paper. In boards, net $0.40.

860. 1 doz books of continuous folding sheets for mounting the cut figures (9×7½″), 48 pages of strong Manila paper. In boards, net $3.75.

Diagrams: Steiger's *Designs for Paper-cutting*, arranged by J. Kraus and M. Kraus-Bœlte. 12 plates, in wrapper. $0.30.

861. *Frœbel's Kindergarten Occupations for the Family.* No. 10. *(Paper-cutting)* in a paper box with chromo-lithographed cover. $0.75.

This Box contains 1 pair of scissors, with rounded blades, 100 leaves of white and colored paper, 10 leaves of ultramarine paper, 96 Designs, and Instructions.

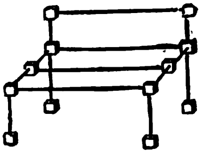
The Ninth Occupation.

Peas or Cork Work

Peas are soaked in water for 8 or 12 hours, and pieces of wire, of various lengths, pointed at the ends are stuck into them for the purpose of imitating real objects and the various geometrical figures. Skeletons are thus produced, which train the eye for perspective drawing most successfully. Wooden sticks similar to those used in Stick-laying but thinner (only 1/16″ thick) are also used for the this purpose.

In place of peas many persons prefer cork cubes which may be conveniently used again and again.

No. **881.** 1 pound of marrowfat peas, in a paper box, net $0.15.
883. 100 cork cubes. $0.25.
884. 1 Piercing-Pin, with short handle. $0.05.
885. 1 doz. Piercing-Pins, with short handles. $0.50.
886. 500 sticks 1″ long. $0.12.
887. 500 „ 2″ „ $0.12.
888. 500 „ 3″ „ $0.15.
889. 500 „ 4″ „ $0.15.
890. 500 „ 5″ „ $0.15.
891. 500 „ assorted lengths. $0.25.
892. 250 „ 13″ long. $0.30.



896. 100 pieces of wire, 1, 2, 3, 4, and 5″ long, assorted. $0.20.

Diagrams: STEIGER's *Designs for Cork or Peas Work*, arranged by J. KRAUS and M. KRAUS-BOELTE, 12 plates, in wrapper. $0.30.

900. *Frœbel's Kindergarten Occupations for the Family.* No. 6. *(Cork or Peas Work.)* In a paper box, with chromo-lithographed cover. $0.75.

This Box contains 60 cork cubes, 60 pieces of wire, 1, 2, 3, and 4″ long, assorted, 1 Piercing-Pin, 108 Designs, and Instructions.

The Tenth Occupation.

Card-board Work.

(Material, Designs, etc., are in preparation.)

The Eleventh Occupation.

Modeling.

921. 1 pound of Modeling-Wax, in a tin box, net $1.25.
926. 20 pounds of Spring's Modeling-Clay (dry), in a wooden box, net $1.10.
927. 10 pounds of Spring's Modeling-Clay (dry), in a wooden box, net $0.60.
931. A Boxwood Modeling-Knife, common kind. $0.10.

932. A Boxwood Modeling-Knife, superior quality, *small size.* $0.15
932a. A Boxwood Modeling-Knife, superior quality, *large size.* $.20.
935. A wooden Modeling-Board. $0.10.
Designs for Modeling. $0.75.

951. Steiger's Sample Cards of Work that may be produced by the first 11 Boxes *Frœbel's Kindergarten Occupations for the Family.* (Nos. 1—12) net $0.75.

Furniture, etc.

Kindergarten Tables, 24″ high, with white-wood cover grooved in 1″ squares, nicely finished and varnished.

No. **961.** A Kindergarten Table, 20″ wide, 30″ long, net $3.00.
962. A Kindergarten Table like No. 961, except that, for the sake of economy and convenience in shipping, the legs and frames can be screwed off, net $4.50. (Packing $0.50 extra.)

Kindergarten Folding Tables.

964. A Kindergarten Folding Table, 30″ wide, 6′ long, net $10.00. (Packing $1.00 extra.)
965. A Kindergarten Folding Table, 30″ wide, 9′ long, net $12.00. (Packing $1.00 extra.)

(Our Tables No. 964 and No. 965 are now so constructed that they can be easily folded up and put aside, if the room should be needed for other purposes. Moreover this saves freight when the tables are shipped long distances.)

☞ Larger Tables will be made to order.

Oil-Cloth Covering, 45″ wide, marked off in 1″ squares, @ $0.40 net per running foot.

(This Covering may be used to fit ordinary tables temporarily for Kindergarten purposes.)

Kindergarten Chairs, with cane seat, each net $1.00.

☞ Boxing and Cost of Forwarding for Tables and Chairs must be charged extra.

Sample Lot C of Steiger's Kindergarten Material (see List), in a Box, net Cash $10.00.

Sample Lot D of Steiger's Kindergarten Material (see List), in a Box, net Cash $4.50.

Sample Lot E of Steiger's Kindergarten Material (the Gifts only — see List), in a Box, net Cash $3.00.

A set of Kindergarten Publications as go with Sample Lot C, net Cash $2.00.

Frœbel's Kindergarten Occupations for the Family, No. 1—18, @ $0.75 — 4 Boxes, taken at one time, for $2.40 — 8 Boxes for $4.40 — the 18 Boxes for $9.00 net Cash.

Portrait of Frœbel. A fine Woodcut, with tinted mat, on heavy white card-board, size 10½″×13″. $0.50.

Portrait of Frœbel. A large crayon portrait, with tinted mat, on extra heavy fine plate paper, size 20″×24″. $1.00.

Bust of Friedrich Frœbel, 21″ high, net $10.00.
—— 19″ high, net $8.00.

Steiger's Kindergarten Paper Frames.

(Passe-partout) for the suitable and convenient exhibition, on the wall or elsewhere, of children's work in Perforating, Embroidering, Drawing, Weaving (Mat-plaiting), Paper-interlacing, Paper-folding, Paper-cutting, etc.

These Paper Frames are attractive and serviceable, having an open space — either right-angled or oval — for the display of the specimens of Kindergarten Work, so arranged that these can be readily inserted; they are made by the doubling of heavy colored card-board, have neatly printed borders, silk bands, and are ready for instant and repeated use.

They serve as on ornament to the room, while, more than this, they have the desirable effect of encouraging the children, who thus have before their eyes some work of their hands, which is a delight to their parents and appreciative friends.

The low price of these Frames permits their very extensive use as a means of preserving the neat and ingenious designs and productions of the children, which otherwise would be lost or considered an encumbrance.

(Kindergarten Paper Frames.)

Each package contains 1 doz. Paper Frames either of one size, in 6 or more assorted colors, or of a selection from various kinds, permitting a suitable and tasteful combination.

The following numbers are now ready; other sizes and styles are in preparation.

No. **1053**. 1 doz. Steiger's Kindergarten Paper Frames, Size **Ec** (Open Space 6" high by 8" wide.) $0.55.
1054. 1 doz., Size **Ed** 8" high by 6" wide.) $0.55.
1055. 6 each of Sizes **Ec** and **Ed**. $0.60.
1064. 1 doz., Size **Fd** (7" high by 5" wide.) $0.50.
1068. 1 doz., Size **Fh** (**oval**, 7" high by $5^1/_2$" wide.) $0.50.
1069. 6 each of Sizes **Fd** and **Fh**. $0.55.
1070. 1 doz., Size **G** (6" high by 6" wide.) $0.50.
1071. 1 doz., Size **Ga** (5" high by 6" wide.) $0.50.
1072. 1 doz., Size **Gb** (6" high by 5" wide.) $0.50.
1072a. 6 Size **G** and 3 each of Sizes **Ga** and **Gb**. $0.55.
1073. 1 doz., Size **Gc** (4" high by 6" wide.) $0.50.
1074. 1 doz., Size **Gd** (6" high by 4" wide.) $0.50.
1075. 6 each of Sizes **Gc** and **Gd**. $0.55.
1076. 3 each of Sizes **G** and **Ga**, and 2 each of Sizes **Gb**, **Gc**, and **Gd**. $0.55.
1077. 1 doz., Size **Gg** (**oval**, $4^1/_2$" high by 6" wide.) $0.50.
1078. 1 doz., Size **Gh** (**oval**, 6" high by $4^1/_2$" wide.) $0.50.
1079. 6 each of Sizes **Gg** and **Gh**. $0.55.
1079a. 1 each of Sizes **G** and **Ga**, and 2 each of Sizes **Gb**. **Gc**, **Gd**, **Gg**, and **Gh**. $0.55.
1880. 1 doz., Size **H** (5" high by 5" wide.) $0.50.
1081. 1 doz., Size **Ha** (4" high by 5" wide.) $0.50.
1082. 1 doz., Size **Hb** (5" high by 4" wide.) $0.50.
1082a. 6 Size **H**, and 3 each of Sizes **Ha** and **Hb**. $0.55.
1083. 1 doz., Size **Hc** (3" high by 5" wide.) $0.45.
1084. 1 doz., Size **Hd** (5" high by 3" wide.) $0.45.
1085. 6 each of Sizes **Hc** and **Hd**. $0.50.
1086. 3 each of Sizes **H**, **Ha**, **Hb**, and **Hc**. 0.55.
1087. 1 doz., Size **Hg** (**oval**, $3^3/_4$" high by 5" wide.) $0.45.
1088. 1 doz., Size **Hh** (**oval**, 5" high by $3^3/_4$" wide.) $0.45.
1089. 6 each of Sizes **Hg** and **Hh**. $0.50.
1089a. 1 each of Sizes **H** and **Ha**, and 2 each of Sizes **Hb**, **Hc**, **Hd**, **Hg**, and **Hh**. $0.50.
1090. 1 doz., Size **I** (4" high by 4" wide.) $0.45.
1091. 1 doz., Size **Ia** (3" high by 4" wide.) $0.45.
1092. 1 doz., Size **Ib** (4" high by 3" wide.) $0.45.
1093. 1 doz., Size **Ic** (2" high by 4" wide.) $0.45.
1095. 6 each of Sizes **Ia** and **Ib**. $0.50.
1096. 3 each of Sizes **I**, **Ia**, **Ib**, and **Ic**. $0.50.
1097. 1 doz., Size **Ig** (**oval**, 3" high by 4" wide.) $0.45.
1098. 1 doz., Size **Ih** (**oval**, 4" high by 3" wide.) $0.45.
1099. 3 each of Sizes **Ia**, **Ib**, **Ig**, and **Ih**. $0.50.
1099a. 1 each **I** and **Ia**, and 2 each **Ib**, **Ic**, **Id**, **Ig**, and **Ih**. $0.50.

☞ One specimen Kindergarten Paper Frame will be mailed free to any Kindergartner applying for the same.

Steiger's Leporello Books

are album-like combinations, in one continuous folding sheet, of 12 Kindergarten Paper Frames of different styles and colors. They are provided with a strong cover and specially suitable for the preservation of the several kinds of Kindergarten Work when it is not convenient to display the Kindergarten Paper Frames singly on the wall.

No. **1106**. Steiger's Leporello Book, Size **F** (made up of 6 Frames each of **Fd** and **Fh**). $0.80.
1107. Steiger's Leporello Book, Size **G** (4 Frames **Gc**, 4 **Gd**, 2 **Gg**, and 2 **Gh**). $0.75.
1108. Steiger's Leporello Book, Size **H** (4 Frames **Hc**, 4 **Hd**, 2 **Hg**, and 2 **Hh**). $0.70.

Wooden Blackboards. Made of best material, thoroughly seasoned. Framed to allow shrinking or swelling without injury to the Blackboard. Both marking surfaces of „*Black Diamond Slating*", the finest and most durable known.

No. 0, size 18×24". $1.50.
„ 1, „ 2×3'. $2.50.
„ 2, „ $2^1/_2$×$3^1/_2$'. $5.25.
„ 3, „ 3×4'. $7.00.
„ 4, „ 3×5'. $9.00.
„ 5, „ $3^1/_2$×$4^1/_2$'. $9.50.
„ 6, „ 3×6'. $11.00.
„ 7, „ 4×5'. $12.00.

Revolving Blackboards. Light, strong wooden Frames, on Rollers.

No. 1, size 3×4'. $13.00.
„ 2, „ $3^1/_2$×$4^1/_2$'. $15.00.
„ 3, „ 4×5'. $18.00.

The „Young Artist" Blackboard and ***Easel*** combined. Size of Blackboard 18×24". Extreme height 46" (allowing the child to sit or stand while drawing).

This Blackboard and Easel is accompanied with a set of 9 new pictures, printed upon stiff cards to be placed in a groove at the top of the board for drawing. It is reversible for marking on both sides; is very portable and easily carried about the house.

Price, with Chamois Rubber and five dustless Crayons. $2.25.

Home Blackboards. *The „Daisy"*. Revolving Blackboard, 19×25". Extreme height 4'. Quickly adjusted to any angle. Easily taken apart or put together in one minute, without tools of any kind. Oil-finished frame.

Price, with set of Drawing Cards, Rubber, and Crayons. $3.00.

„*The Holly*". Same style as above. Revolving Blackboard. 24×36". Extreme height 5' 4".
With Drawing Cards, Rubber, and Crayons. $4.50.

Any size of Blackboards ruled to order for Kindergarten purposes at reasonable prices.

Roll Blackboards. Lapilinum mounted on Rollers.

No. 1, size 2×3'. $1.00.
„ 2, „ $2^1/_2$×$3^1/_2$'. $1.50.
„ 3, „ 3×4'. $2.00.

Bristol-Card Blackboards. Plain. Without Shelf.

No. 1, 18×24". $1.00.
„ 2, 24×36". $2.00.
„ 3, ruled for Music, 24×36". $2.50.

Chamois Blackboard Rubbers. For use without moisture.

No. 1, 1 doz. small size $1^5/_8$×2". $1.00.
„ 2, 1 doz. medium size $1^3/_4$×$4^1/_2$". $1.80.
„ 3, 1 doz. large size $1^7/_8$×6". $3.00.

Blackboard Pointers. Length from 2 to 5', each $0.10 and $0.20.

Chalk. White, per gross $0.15. Colored, per gross $1.00.
1 doz. White, in neat paper box. $0.05.
1 doz. Colored (red, yellow, blue, green). $0.25.

Chalk Holders. Recently invented, neat economical, each $0.05.

The New Blackboard Dividers. $0.50.

Black Diamond Slating. The best Liquid Slating (without exception) for Walls and Wooden Blackboards. Makes the finest and most durable surface. Easily applied with a common brush to any surface. Put up in tin cans of various sizes, with full directions for use.

Pint, $1.00. Quart, $1.75. Half Gallon, $3.25. Gallon, $6 00 net.

Flat Brush (4"), $0.50 net.

1 quart easily covers 50 square feet with 3 coats, as usually applied.

Wooden Dumb-Bells. Made of Rock Maple, polished.

No. 1,	Each Dumb-Bell weighs about 6 ounces,	per pair	$0.35 net.
„ 2,	8 „	„	$0.40 „
„ 3,	12 „	„	$0.45 „
„ 4,	20 „	„	$0.50 „

Wands for Exercising. Made of Ash or Walnut. 28 to 40" long, each $0.35 net. — 41 to 60" long, each $0.35 net.

Exercising Rings for Schools.

3"	Rings (3 pieces),	per pair	$0.35 net.
4"	„ „	„ „	$0.40 „
5"	„ „	„ „	$0.45 „
6"	„ „	„ „	$0.60 „
7"	„ „	„ „	$0.75 „
8"	„ „	„ „	$0.90 „

Aids for Teaching Numbers. 1 *Numeral-Frame*, size 10×12", with 144 colored Balls (*primary* and *secondary* colors), net $0.75.

Aids for Lessons in Form. New Forms and Solids for Object-teaching. Containing 64 pieces — 48 Plane Forms, 15 Solids, and a 6" Rule. There are several *new* Forms and Solids, not included in any other set. Each Form is stamped with its number in the list.

(1) Equilateral Triangle. 2) Right-angled Triangle. 3) Right-angled Triangle. 4) Obtuse-angled Triangle. 5) Curved Triangle. 6) Triangle— one curved side. 7) Isosceles Triangle. 8) Scalene Triangle. 9) Square. 10) Oblong. 11) Rhomb. 12) Rhomboid 13) Trapezium. 14) Trapezoid. 15) Pentagon. 16) Hexagon. 17) Heptagon. 18) Octagon. 19) Nonagon. 20) Decagon. 21) Circle. 22) Semicircle. 23) Quadrant. 24) Segment. 25) Sector. 26) Ring. 27) Crescent. 28) Ellipse. 29) Oval. 30) Sphere. 31) Hemisphere. 32) Prolate-Spheroid. 33) Oblate-Spheroid. 34) Ovoid. 35) Cylinder. 36) Cone. 37) Conoid. 38) Cube. 39) Square Prism. 40) Triangular Prism. 41) Hexagonal Prism. 42) Square Pyramid. 43) Triangular Pyramid. 44) Six-inch Rule.)—Price, in substantial wooden box $2.00 net.

German Spelling and Reading. A wooden box containing 305 loose German Letters, Punctuation marks and Numerals, all mounted on board. $2.50 net.

The Educational Clock Dial. This is not a new idea, presented in a new form which commends it to all progressive teachers.

The back contains a series of illustrations and descriptions of the prominent methods used in different ages for marking time. Mounted on heavy binder's board, bound with cloth and varnished, each, $0.50 net (by mail, $0.60 net).

The same matter, front and back, on heavy cardboard, without binding or varnished, a good article for the home but not as durable for school use, each, $0.25 net (by mail, $0.30 net).

Educational Toy Money. *(E. S. Fischer's Patent.)* *Fac-similes* of coins on heavy card-board. We offer this money in boxes, each containing eight trays. Also in bulk. Each box contains assorted pieces representing about $16.50. Sample by mail $0.25 net, incl. postage.

The same pieces in bulk at the following prices: —

One Dollar pieces,	per Thousand	$1.75 net.
Half Dollar pieces,	„ „	$1.25 „
Quarter Dollar pieces,	„ „	$1.00 „
Ten Cent pieces,	„ „	$0.60 „
Five Cents pieces	„ „	$0.75 „
Two Cent pieces,	„ „	$0.80 „
One Cent pieces,	„ „	$0.75 „

Mrs. B. W. Putnam's Busy Work Tiles. An occupation for the youngest children — in the home, the Kindergarten, and the Primary school.

The Tile is a finely finished board, 6" square, holes drilled for pegs of various colors.

There are three Tiles with different patterns.

Tile No. 1 has the holes arranged 1/2" apart in form of a Square.

Tile No. 2 has the holes arranged 1/2" apart in form of a Triangle.

Tile No. 3 has the holes arranged 1/2" apart in form of a Circle with a Cross in the centre.

The pegging of lines, angles, and geometrical forms, the arranging of the colors in the various combinations, and the inventions of new forms and combinations have given much pleasure while affording the means of instruction to the little ones in the Kindergarten and the home.

As put up for Kindergarten and school use, the boards are without pegs, and the pegs are in boxes of one thousand each, assorted in six colors. For private use one board with good assortment of pegs is put in a paper box, making it complete.

1 Tile without Pegs.	net $0.25,	Postage extra	$0.05 net
1000 Pegs, 6 colors in a box	„ $0.20,	„ „	$0.04 „
1 Tile in box with Pegs	„ $0.35,	„ „	$0.08 „

In ordering, say which pattern is wanted, whether No. 1, No. 2, or No. 3.

Kindergarten Fancy-work

suitable for presents.

Embroidery on Silver Canvas-paper. Canvas articles,

(Goods marked with an asterisk are supplied with a back-piece.)

No. 1250.* Basket, octagonal. $0.45.
1256.* 1 Napkin-Ring. $0.15.
1261. 1 small Basket, oblong. $0.15.
1267. 1 Needle-Book Cover. $0.15.
1286.* 1 Lamp-Mat. $0.75.
1291.* 1 Wall-Pocket. $0.50.
1292. 1 Frame for Photograph. $0.15.
1296.* 1 small Basket. $0.50.
1297.* 1 Plate. $0.30.
1299.* 1 Wall-Almanac. $0.60.
1301. 1 Book-Mark. $0.10.
1304. 1 Collar-Box, with cover. $0.65.
1306.* 1 Watch-Holder. $0.25.
1309.* 1 Match-Holder. $0.30.
1313. 1 Jewel-Case. $0.35.
1317.* 1 Lamp-Mat. $0.75.
1319.* 1 Lamp-Mat. $0.35.
1327.* 1 Pen-holder Stand. $0.35.
1342.* 1 Match-Box. $0.30.
1372.* 1 Watch-Holder, in form of a slipper. $0.20.

(Kindergarten Fancy-work.)

No. 1373.* 1 Thermometer. $0.95.
1374.* 1 Spectacle-Case. $0.20.
1376. 1 Cigar-Case in form of a goblet. $0.30.
1382.* 1 Holy-water Stoup. $0.60.
1383. 1 Handkerchief-Box. $0.95.
1385. 1 Box for Playing-Marks. $0.35.
1386.* 1 Lamp-Mat. $0.75.
1394. 1 Napkin-Ring. $0.15.
1397. 1 Glove-Box. $1.25.
1398. 1 Basket with handle. $0.80.
1399.* 1 Frame for Photograph. $0.20.
1408.* 1 Plateau. $0.70.
1413. 1 Book-Mark. $0.08.
1426. 1 Lamp-Mat. $0.70.
1427. 1 Nightlamp-Shade. $1.25.
1428.* 1 Memorandum-Slate. $0.60.
1453. 1 Book-Mark. $0.08.

Baskets for Cards or Needle-work, of Colored Card-board.

1455. A package containing 6 *small* Baskets of colored card-board, assorted sizes and colors. $0.50.

1455a. A package containing 6 larger Baskets of colored card-board, assorted sizes and colors. $0.75.

Perforating and Embroidering Patterns on Colored Card-Board.

Perforating.

1456. 1 Lamp-Shade, designs of flowers, 8" high. $0.25.
1457. 1 Lamp-Shade, designs of Flowers, 7" high. $0.25.
1458. 1 Thread-Spool, in form of a star. $0.10.
1459. 1 Needle-Book Cover. $0.25.
1460. 1 Match-Holder. $0.20.
1461. 1 small Basket, twelve-sided. $0.10.
1462. 1 Napkin-Ring, with picture. $0.20.
1463. 1 small Book-Mark. $0.10.
1464. 1 larger Book-Mark. $0.15.
1465. 1 Lamp-Shade, designs of butterflies, $7^1/_2$". $0.25.
1466. 1 small Basket, octagonal. $0.25.
1467. 1 Watch-Holder, in form of a slipper. $0.20.
1468. 1 large Basket, octagonal. $0.35.
1469. 1 Lamp-Mat. $0.35.
1470. 1 small Wall Pocket. $0.30.
1471. 1 Lamp-Shade, with 2 pictures, $7^3/_4$" high. $0.50.
1472. 1 Collar-Box. $0.60.
1473. 1 Lamp-Shade, flower-designs (Roses), $7^3/_4$", $0.30.
1474. 1 Lamp-Shade, with 2 large colored pictures, $7^3/_4$" high. $0.50.
1475. 1 Lamp-Shade, gilt, and with 2 round pictures, $7^1/_2$" high. $0.60.
1476. 1 Lamp-Shade, gilt, and with 4 pictures, $7^1/_2$" high. $0.60.
1477. 1 Lamp-Shade, flower designs, $7^1/_2$" high. $0.35.

Embroidering Designs.

1478. 1 small Basket, octagonal. $0.20.
1479. 1 larger Basket, octagonal. $0.25.
1480. 1 large round Plate. $0.40.
1481. 1 small Basket, oblong. $0.25.
1482. 1 Book-Mark. $0.10.
1483. 1 Needle-Book Cover. $0.35.
1484. 1 small round Plate. $0.20.
1485. 1 Napkin-Ring. $0.30.

The following selection of Material is suggested as the

First Outfit of a Kindergarten for 25 Children:

3 First Gift (No. 1); 6 Second Gift (No. 11); 25 Third Gift (No. 21); 25 Fourth Gift (No. 31); 25 Seventh Gift (No. 61. Eight Squares, 1×1"); 25 Seventh Gift (No. 71. Sixteen small right-angled isosceles triangles); 300 Wooden Slats, 9" long, $^1/_2$" wide (No. 131); a package containing 500 sticks, 2" long (No. 156); 3 doz. Perforating-Needles, with short handles (No. 277); 25 Perforating-Cushions, $5^1/_2$×7" (No. 281); 6 packages, each containing 25 leaves of card-board, 4×$5^1/_2$", ruled in $^1/_4$" squares, on one side (No. 301); 1 ounce of Worsted each of 12 colors (No. 345); 25 patent Wire-bound Kindergarten Slates, 8×12", grooved in $^1/_4$" squares, on one side (No. 425); 100 Slate-pencils (No. 432); 3 doz. Weaving-Mats (No. 501); 3 doz. W.-M. (No. 502); 3 doz. W.-M. (No. 503); 3 doz. W.-M. (No. 504); 3 doz. W.-M. (No. 505); 3 doz. W.-M. (No. 506); 6 doz. W.-M. (No. 521); 6 doz. W.-M. (No. 522); 3 doz. W.-M. (No. 551); 3 doz. W.-M. (No. 552); 3 doz. W.-M. (No. 553); 3 doz. W.-M. (No. 561); 3 doz. W.-M. (No. 562); 3 doz. W.-M. (No. 563); 3 doz. W.-M. (No. 571): 2 doz. Wooden Weaving-Needles, $11^1/_2$" long (No. 761); 2 doz. Wooden Weaving-Needles, 8" long (No. 762); 8 packages, each containing 100 leaves of strong white paper, 4" squares (No. 821); 8 packages, each containing 100 leaves of colored paper, 4" square (No. 822); 6 packages each containing 20 leaves of strong ultramarine paper, for mouting the cut figures (No. 855); 6 packages, each containing 20 leaves of Strong Manila paper, for mounting the cut figures (No. 856).

More economical is the following selection which may suffice as the

First Outfit of a Kindergarten for 12 Children:

1 First Gift (No. 1); 1 Second Gift (No. 11); 12 Third Gift (No. 21); 12 Fourth Gift (No. 31); 12 Seventh Gift (No. 61. Eight Squares, 1×1"); 12 Seventh Gift (No. 71. Sixteen small right-angled isosceles triangles); 100 Wooden Slats, 10" long, $^1/_2$" wide (No. 131); 1 package containing 500 sticks, 2" long (No. 156); 18 Perforating-Needles, with short handles (No. 277); 12 Perforating-Cushions, 7×9" (No. 281); 3 packages, each containing 25 leaves of card-board, 5×$5^1/_2$", ruled in $^1/_4$" squares, on one side (No. 301); 1 ounce of Worsted each of 12 colors (No. 345): 12 patent Wire-bound Kindergarten Slates, 8×12", grooved in $^1/_4$" squares, on one side (No. 425); 50 Slate-pencils (No. 431); 1 doz. Weaving-Mats (No. 501); 1 doz. W.-M. (No. 502); 1 doz. W.-M. (No. 503); 1 doz. W.-M. (No. 504); 1 doz. W.-M. (No. 505); 1 doz. W.-M. (No. 506); 3 doz. W.-M. (No. 521); 3 doz. W.-M. (No. 522); 1 doz. W.-M. (No. 551); 1 doz. W.-M. (No. 552); 1 doz. W.-M. (No. 553); 1 doz. W.-M. (No. 561); 1 doz. W.-M. (No. 562); 1 doz. W.-M. (No 571); 2 doz. Steel Weaving-Needles (No. 766); 4 packages, each containing 100 leaves of strong white paper, 4" square (No. 821); 4 packages, each containing 100 leaves of colored paper, 4" square (No. 822); 3 packages, each containing 20 leaves of strong ultramarine paper, for mounting the cut figures (No. 855); 3 packages, each containing 20 leaves of strong Manila paper, for mounting the cut figures (No. 856).

In addition to the above mentioned Material, Chairs, and Tables are needed. Common low tables may be used, temporarily covered with the Oil-cloth Covering ruled in squares.

Note.–*The above quoted lists of Material which experienced Kindergartners consider sufficient as an outfit for 25 or 12 children respectively, may be materially modified according to circumstances. A considerable saving can be effected* *by purchasing e. g. No. 21, 31, 61, 71, etc. without boxes (loose in paper). Of other items smaller quantities might be purchased. On the other hand, the selection may be made far more complete, according to the judgment of the Kindergartner.*

☞ We shall furnish such quantities at reduced prices, according to special agreement.

The Catalogue on the foregoing pages supersedes all Lists previously issued; upon comparison considerable additions will be noticed, which increased manufacturing facilities have enabled us to make.

However extensive this Catalogue, it does not comprise all our stock of Kindergarten Gifts, Occupation Material, Furniture, etc. Many kindred articles are on hand, and new additions are continually being produced as fast as circumstances permit to carry out our plans and desires of promoting whatever tends to the development and popularization of the Kindergarten System. — The **Thread Game**, the **Point-Laying**, the **Painting**, the **Silver Canvas goods**, etc. enumerated on the preceding pages may be regarded as evidences of such activity.

☞ The designation by numbers (No.) of the several articles in *this* Catalogue is an arbitrary one *made by us* for the purpose of enabling customers to be precise in ordering. *Our* numbering does ***not agree*** with that adopted by other dealers, and appearing in other catalogues and lists.

To prevent mistakes, our customers are, therefore, requested to mention expressly: ***Steiger's Kindergarten Material,*** and then state ***Quantity*** desired, ***No., Name*** of article, and the ***Price*** quoted in this Catalogue (for instance: ***10 No. 21, Third Gift @ $0.20.)***

Such care in making out orders will prove advantageous to customers.

STEIGER'S First Kindergarten Set.

Gifts and Material for the First Grade. $6.00 net.

No. 1. (The First Gift.) A set of six worsted balls, of the rainbow or standard kindergarten colors, with strings. In a wooden box with crossbeam for hanging the balls. With Directions.

11. (The Second Gift.) A set consisting of a sphere, a cylinder, and two cubes neatly made of wood and provided with the necessary staples, holes, and strings. In a wooden box, wirh cross-beam for hanging the forms. — Directions for the use of the First and Second Gifts: KRAUS' *Guide*, Number One. In paper.

35. (Froebel's Kindergarten Occupations for the Family, No. 15.) **Building, Number One.** In a paper box.

111. (Froebel's Kindergarten Occupations for the Family, Nos. 11 and 12.) **Tablet-laying.** In a paper box.

141. (Froebel's Kindergarten Occupations for the Family, No. 7.) **Plaiting (Slat-interlacing).** In a paper box.

191. (Froebel's Kindergarten Occupations for the Family, No 1.) **Stick-laying**. In a paper box.

249. (Froebel's Kindergarten Occupations for the Family, No. 14.) **Point-laying.** In a paper box.

401. (Froebel's Kindergarten Occupations for the Family, No. 5.) **Embroidering.** In a paper box.

791. (Froebel's Kindergarten Occupations for the Family, No. 4.) **Weaving (Braiding).** In a paper box.

STEIGER'S Second Kindergarten Set.

Gifts and Material for the Second Grade. $4.00 net.

43. (Froebel's Kindergarten Occupations for the Family, No. 16.) **(Building, Number Two.)** In a paper box.

No. 221. (Froebel's Kindergarten Occupations for the Family, No. 8.) **Ring-laying.** In a paper box.

232. (Froebel's Kindergarten Occupations for the Family, No. 13.) **Connected Slat and Thread Game.** In a paper box.

291. (Froebel's Kindergarten Occupations for the Family, No. 3.) **Perforating (Pricking).** In a paper box.

471. (Froebel's Kindergarten Occupations for the Family, No. 2.) **Net-Work Drawing.** In a paper box.

811. (Froebel's Kindergarten Occupations for the Family, No. 9.) **Intertwining.** In a paper box.

861. (Froebel's Kindergarten Occupations for the Family, No. 10.) **Paper Cutting.** In a paper box.

STEIGER'S Third Kindergarten Set is in preparation.

Sample Lots

of Steiger's Kindergarten Material.

Sample Lot C, comprising 1 each of No. **1, 11, 21, 31, 41, 51, 111, 141, 191, 221, 239, 249, 291, 401 423, 441, 521, 622, 758, 765, 811, 822, 861, 900, 951, 1069, 1079a** and the following Kindergarten Publications, viz.:

James Hughes. *The Kindergarten.*

The Kindergarten engrafted on the American Public School System.

Kindergarten Tracts (STEIGER'S), a set.

Maria Kraus-Bœlte. *The Kindergarten and the Mission of Woman.*

Maria Kraus-Bœlte and John Kraus. *The Kindergarten Guide.* Vol. I. Paper.

Matilda H. Kriege. *Friedrich Frœbel.*

Joseph Payne. *Frœbel and the Kindergarten System of Elementary Instruction.*

Plays and Songs for Kindergarten and Family.

Emily Shirreff. ***The Claim of Frœbel's System to be called „The New Education".***

All the above — *Sample Lot C* of Material and Publications — done up in a strong box, is offered for only **$10.00,** the Cash to come with the Order.

Sample Lot D, comprising 1 each of No. **1, 11, 21, 31, 41, 51, 111, 131, 176, 216, 276, 281, 341, 423, 441, 521, 758, 765, 801, 822, 845, 851, 883, 884, 896** supplied for only **$4.50,** the Cash to come with the Order.

Sample Lot E, comprising 1 each of No. **1, 11, 21, 31, 41, 51, 111, 131, 176, 216** supplied for only **$3.00,** the Cash to come with the Order.

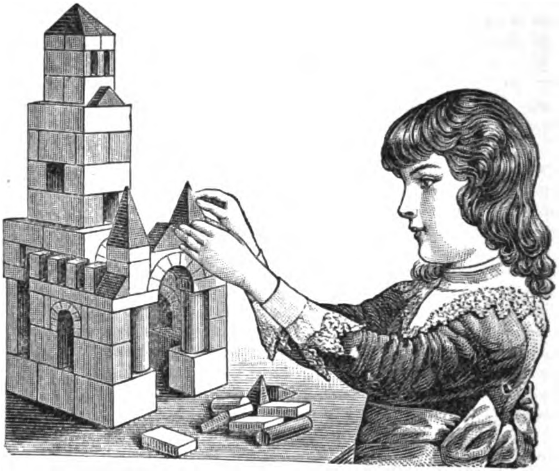
☞ The exceptional price quoted for Sample Lots *C, D, E,* respectively, being less than cost, duplicate Lots can be furnished only at increased rates. ☜

The cost of **Forwarding** to be paid for extra.

For additional and more detailed information we refer to *Steiger's Catalogue No. 7* (Kindergarten Material), single copies of which will be furnished free on application.

The
Anchor Boxes

containing Building Blocks of artificial stone in 3 natural colors (brick-red, sandstone - yellow, slate - blue), and colored building designs.



The "Anchor Boxes" may be considered a new stage in the development of Fröbel's ideas; they are highly appreciated as an occupation by which the child's mind is early trained and led into the right direction. It is further acknowledged as a fact that the occupation of building is a good preventive against that craving for reading which so many children possess. The conviction has become more and more general that it is of no benefit to the children to give them too much to read, as owing to the haste with which most books are read, the children get but a shallow understanding of what they read and besides, it makes them nervous. But the "Anchor Boxes" on the contrary afford a beneficial rest to the child's mind, as the little builder knows too well that he does not reach his aim any sooner by too much haste; he must calmly consider everything, if he will solve his problem and this circumstance alone gives the "Anchor Boxes" the character of a most important means of education.

The *Illustrated London News* says: "As in-door playthings for ingenious little children, toy bricks and tiles are commendable, and much is learnt by their use. Messrs. F. Ad. Richter & Co. have introduced a great improvement, choosing a new material for these toys, fine composition stone, not painted but substance-colored, in imitation of yellow sandstone, red brick, and blue slate. The pieces are all cut with the nicest precision, in many shapes and sizes; the putting together of which is a good education for the tasteful eye, as well as for the mechanical faculty. Many directors of schools and teachers of art have testified their approbation of the "Anchor Boxes", which have been adopted by the Crown Princess, and by other ladies of the highest rank, for use in the Imperial and Royal nurseries, and which might afford no unworthy amusement to persons of mature age. We have seen a large box, containing bricks, a few short pillars, and pieces that combine to form arches, from which many handsome architectural designs could be produced; and a small box of tiles for mosaic pavement, which easily falls into beautiful arrangements, the colors being subdued and harmonious with each other, and really equal those of natural material for the purpose. The substance is pleasant to handle, and will neither chip, shrink, nor wear, nor soften by wetting; nor can the coloring matter be rubbed or washed off. Boxes of twenty different assortments, the prices ranging with the size and weight and number of the pieces, any of which, if lost, can readily be replaced, are offered for sale, with interesting books of instruction".

The "Anchor Boxes" principally distinguish themselves from the building boxes hitherto in use in that they contain real stones instead of wooden blocks. Building with stones in natural colors is for the child not only a pleasant way to pass the time, but it also greatly stimulates his intellectual powers. The designs which are executed with superior taste and great exactness and which are represented in great variety from the simplest to the most complicated, are producing in the child's mind an understanding for measures, proportions and perspective. The ground plans and sections given for the more difficult structures, besides facilitating building, compel the little builder to reflect and give him an idea of the construction of a real building. The supplement system enables even less well-to-do parents to put to the growing intellect of the child more and more difficult problems. When the child has repeatedly constructed the models from the book of designs he will soon be able to erect buildings from his own fancy.

For these reasons we do not hesitate to sincerely recommend these "Anchor Boxes" from a pedagogical point of view to all parents and instructors and we wish that this new occupation may soon be more largely introduced into the families.

First Series. Original Boxes.

Of the following 4 Numbers, the building stones are contained in strong paste-board boxes.

No.
0. Size: $5^{1}/_{4} : 3^{1}/_{4} : 1^{1}/_{8}$". Contains 18 Anchor Building Stones, small size (cube $^{4}/_{5}$" high) and one sheet of 20 colored building designs. (This Box can be made equal to Box No. 2 by adding Supplement Box No. 0A, and by the further addition of Supplement Boxes No. 2A, 5A, 9A, 13A and 20A it can be made equal to Box No. 22.) Price $0.25
1. One layer, 30 stones, small size $0.50
2. One layer, 34 stones, small size $0.65
3. One layer, 28 stones, large size $0.75

Of the following 5 Numbers, the stones are contained in wooden boxes, with sliding lid and metal corners.

4. One layer, 52 stones, small size $1.00
5. One layer, 63 stones, small size $1.25
6. One layer, 53 stones, large size $1.50
7. One layer, 65 stones, large size $1.75
8. One layer, 92 stones, small size $2.00

Of the following 14 Numbers, the stones are contained in walnut-stained varnished wooden boxes, with sliding lid and metal corners.

9. One layer, 119 stones, small size $2.50
10. One layer, 107 stones, large size $3.00
11. One layer, 124 stones, large size $3.50

12. One layer, 182 stones, small size $4.00
13. Two layers, 259 stones, small size $5.00

Which of the above mentioned Anchor Boxes is the most suitable for our children?

As even the large boxes may be given to young children — the designs accompanying the boxes being so well arranged as to afford amusement for all ages — the only question left to consideration is the amount of money to be invested. As will be seen from the description we give hereafter, every Anchor Box can by the future purchase of a "supplement box" be systematically enlarged, so that those who would like to have one of the larger boxes need not buy an expensive one at once, but they can begin with the very smallest. So, for instance, the smallest box No. 0 can by future purchase of the respective "supplement boxes" be ultimately so enlarged as to be equal to box No. 22. It is generally better to buy a larger box, and parents need not be afraid that the children get too many stones at once, as most of the larger boxes are so arranged that part of the stones and books of designs can be kept back until the young builders have made some progress in the art of building. So, for instance, of box No. 15 one layer can be taken out with the book No. 15 and still the child will be able to erect all the buildings of the book series 11.

In order to give the reader a clear idea of the different sizes of Anchor Boxes, we have furnished of each box a building design. Though being drawn on a reduced scale, the designs will sufficiently show what kind of buildings can be constructed with the different boxes. The height of the buildings is easily ascertained by counting the layers, a cube of the small caliber measuring 3/4 inch and of the large caliber 1 inch in height.

On looking through the descriptions of the various boxes, the attentive reader will find that the very large buildings are executed with stones of large caliber; thus it follows, that those who intend to erect by and by the very largest buildings should commence with a box containing stones of *large caliber.*

No.	**First Series**
14.	Two layers, 226 stones, large size $6.50
15.	Two layers, 308 stones, large size $7.50
16.	Three layers, 402 stones, large size $10.00
17.	Three layers, 554 stones, large size $12.50
18.	Three layers, 653 stones, large size $15.00
19.	Four layers, 881 stones, large size $18.00
20.	Three layers, 449 stones, small size $8.50
22.	Four layers, 720 stones, small size $12.50
23.	Seven layers, 1924 stones, large size $42.00

Of the following 6 Numbers, the stones are contained in finely polished oakwood boxes, with flap lid, nickeled lock, and hinges.

30.	Two layers, 124 stones, large size $7.50
31.	Two layers, 182 stones, small size $8.50
32.	Two layers, 308 stones, large size $12.50
33.	Three layers, 554 stones, large size $18.00
34.	Three layers, 653 stones, large size $21.00
35.	Four layers, 881 stones, large size $24.00

Second Series. Supplement Boxes,

to be used in enlarging and complementing the Boxes No. 0 to 35.

Of the following 4 Numbers, the stones are contained in strong paste-board boxes.

0A.	One layer, 22 stones, small size $0.40
1A.	One layer, 33 stones, small size $0.60
2A.	One layer, 40 stones, small size $0.70
3A.	One layer, 28 stones, large size $0.75

Of the following 5 Numbers, the stones are contained in wooden boxes, with sliding lid.

4A.	One layer, 45 stones, small size $1.00
5A.	One layer, 56 stones, small size $1.25
6A.	One layer, 54 stones, large size $1.65
7A.	One layer, 59 stones, large size $1.70
8A.	One layer, 90 stones, small size $2.00

Of the following 13 Numbers, the stones are contained in walnut-stained varnished wooden boxes, with sliding lid and metal corners.

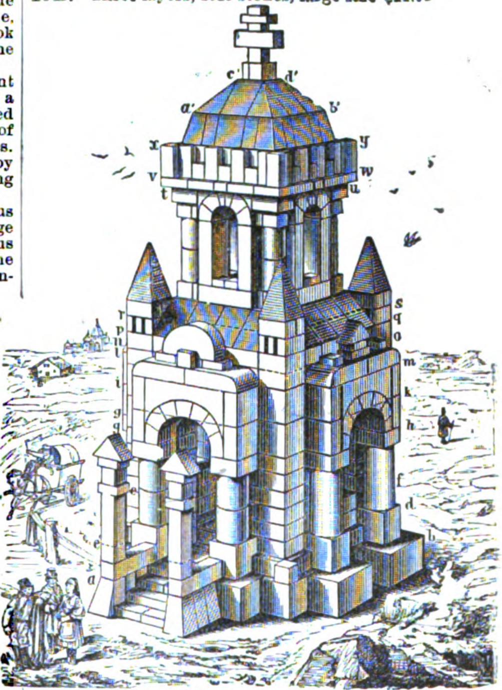
9A.	One layer, 140 stones, small size $2.75
10A.	One layer, 119 stones, large size $3.50
11A.	One layer, 184 stones, large size $4.00
12A.	One layer, 266 stones, small size $4.50
13A.	One layer, 190 stones, small size $3.50
14A.	One layer, 176 stones, large size $3.75
15A.	One layer, 246 stones, large size $5.00
16A.	One layer, 249 stones, large size $5.00

No.	**Second Series**
17A.	One layer, 327 stones, large size $6.00
18A.	Two layers, 551 stones, large size $11.00
19A.	One layer, 321 stones, large size $8.00
20A.	One layer, 271 stones, small size $4.00
21A.	Two layers, 722 stones, large size $16.50

Third Series. Double Supplement Boxes.

Of the following 7 Numbers, the stones are contained in walnut-stained, varnished wooden boxes, with sliding lid and metal corners.

No.	
13B.	Two layers, 461 stones, small size $7.50
14B.	Two layers, 425 stones, large size $8.50
15B.	Two layers, 573 stones, large size $11.00
16B.	Three layers, 800 stones, large size $16.00
17B.	Four layers, 1370 stones, large size $30.00
18B.	Four layers, 1271 stones, large size $27.00
19B.	Three layers, 1043 stones, large size $24.00



Of the following 4 Numbers, the stones are contained in finely polished oakwood boxes, with flap lid, nickeled lock, and hinges.

32B.	Two layers, 573 stones, large size $15.00
33B.	Four layers, 1370 stones, large size $35.00
34B.	Four layers, 1271 stones, large size $32.00
35B.	Three layers, 1043 stones, large size $29.00

Fourth Series. Stone Tablets.

Anchor Tablet Laying No. 1	$1.00
,, ,, ,, ,, 2	$1.75
Anchor Mosaic Game	$4.50

Cooper Union for the Advancement of Science and Art.

NEW YORK, October 5th 1888.

I take great pleasure in informing you that the two boxes of stone building blocks......have even at this early date proved of the greatest advantage and usefulness to the architectural and normal drawing classes, in which I have placed them.

Yours respectfully

L. C. L. JORDAN,

Ass't Sec'y.

We supply all kinds of **Educational Apparatus** and **Material** in addition to what is mentioned on the foregoing pages. Many new articles will shortly be added to our stock, and we shall be pleased to produce, if possible, specialties according to the directions of Educators.

Special attention is hereby invited to

PRANG'S Models for Form-Study and Drawing.

A. Solids.

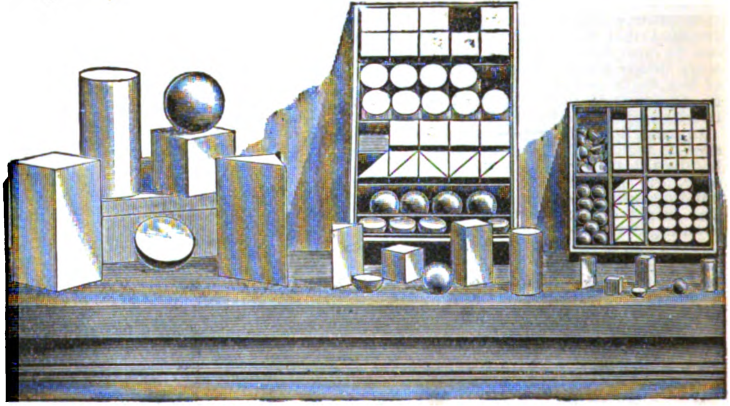
Set No. 1.—(For First Primary Year.) This Set contains the following 6 Solids — in 3 sizes —(each size put up separately in a handsome box): 1) Sphere; 2) Cube; 3) Cylinder; 4) Hemisphere; 5) Square Prism; 6) Right-Angled Triangular Prism. The complete Set (3 boxes) \$10.00.

Also separately:

Set No. 1. Group A. — Teacher's size, 1 each (sphere 4" in diameter). \$4.00

Set No. 1. Group B.— Pupils' size, 10 each (sphere 2" in diam.). \$3.00.

Set No. 1. Group C.— Pupils' size, 20 each (sphere 1" in diam.). \$3.00.



Solids, Set No. 1. Group A. Group B. Group C.

These Solids are sold separately, or in bulk. For prices see list on pages 3 and 4. The B and C sizes can also be put up in sets of 40 or 60 of each piece, if desired.

Set No. 2.—(For Second Primary Year.) This Set contains the following 6 Solids — in 3 sizes — (each size put up separately in a handsome box): 1) Ellipsoid; 2) Ovoid; 3) Equilateral Triangular Prism; 4) Cone; 5) Square Pyramid; 6) Vase. The complete Set (3 boxes) \$12.00.

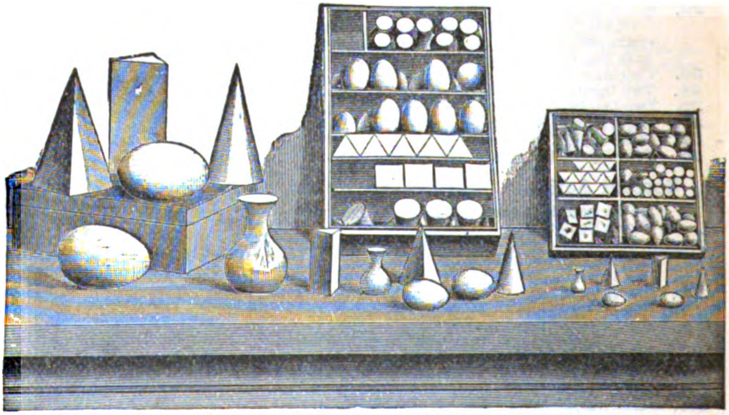
Also separately:

Set No. 2. Group A.— Teacher's size, 1 each (cone 4 × 8") \$4.50.

Set No. 2. Group B. — Pupils' size, 10 each (cone 2 × 4") \$4.00

Set No. 2. Group C.— Pupils' size, 20 each (cone 1 × 2") \$3.50.

These Solids are sold separately or in bulk. For prices see list on pages 3 and 4. The B and C sizes can also be put up in sets of 40 or 60 of each piece, if desired.



Solids, Set No. 2. Group A. Group B. Group C.

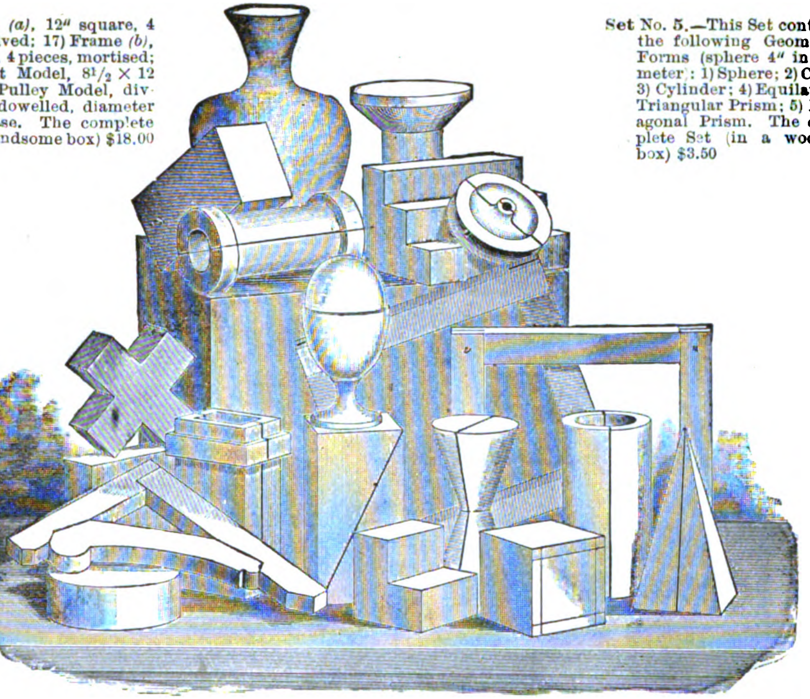
Set No. 3. — (For Third and Fourth Years.) This Set contains 1 each of the following 7 Solids—(diam. of sphere 4":) 1) Sphere, halved and quartered; 2) Cube, quartered diagonally; 3) Pentagonal Prism; 4) Hexagonal Prism; 5) Octagonal Prism; 6) Vase *(a)*; 7) Vase *(b)*. The complete Set (in a handsome box) \$6.50.

Set No. 4. — (For Fifth to Ninth Year.) This Set contains the following 20 Solids (diam. of cube 4".) 1) Cube with Incised Faces, 4" face; 2) Square Plinth, 6 × 2"; 3) Oblong Block, 4 × 8 × 3"; 4) Square Prism, divided diagonally, 4 × 8"; 5) Circular Plinth, 6 × 2"; 6) Cubical Steps, 4" face; 7) Flight of 3 Steps, 8" long, 2" tread, $1^{2}/_{3}$" riser; 8) Cross, 6 × 2"; 9) Double Cone, divided and dowelled, 4 × 8"; 10) Hollow Cylinder, divided and dowelled, 4 × 8"; 11) Hollow-flanged Cylinder, divided and dowelled, 4 × 8"; 12) Chimney Model, divided and dowelled; 13) Egg and Egg-Cup; 14) Spool, 6 × 8"; 15) Square Pyramid, divided and dowelled, 4 × 8";

PRANG'S MODELS FOR FORM-STUDY AND DRAWING

16) Frame *(a)*, 12" square, 4 pieces, halved; 17) Frame *(b)*, 12" square, 4 pieces, mortised; 18) Bracket Model, 8½ × 12 × 1"; 19) Pulley Model, divided and dowelled, diameter 5"; 20) Vase. The complete Set in a handsome box) $18.00

Set No. 5.—This Set contains the following Geometric Forms (sphere 4" in diameter): 1) Sphere; 2) Cone; 3) Cylinder; 4) Equilateral Triangular Prism; 5) Hexagonal Prism. The complete Set (in a wooden box) $3.50



Solids, Set No. 4.

Models for Prang's Shorter Course. Solids and Tablets.

Set No. 7.—For classes using Drawing-Book No. 1 of *Prang's Shorter Course.* It consists of 1 each :—Sphere, Cube, and Hemisphere, Teacher's size:—Circle, Semicircle, and Square, Teacher's size; and 20 each of the 3 Solids, Pupils' size. (In a wooden box) $4.50 net.

Set No. 8.—For classes using Drawing-Book No. 2 of *Prang's Shorter Course.* It consists of 1 each:—Cylinder, Square Prism, Vase Form, Teacher's size:—Circle, Square, Oblong, Teacher's size; and 20 each of the 3 Solids, Pupils' size. (In a wooden box) $6.00 net.

Set No. 9.—For classes using Drawing-Book No. 3 of *Prang's Shorter Course.* It consists of 1 each:—Ellipsoid, Ovoid, Equilateral Triangular Prism, Teacher's size:—Ellipse, Oval, Equilateral Triangle, Teacher's size; and 20 of each of the 3 Solids, Pupils' size. (In a wooden box) $5.50 net.

Set No. 10.—For classes using Drawing-Book No. 4 of *Prang's Shorter Course.* It consists of 1 each of the following Solids, Teacher's size:—Sphere, Cube, Cylinder, Square Prism, Cone. (In a wooden box) $3.50 net.

Set No. 11.—For classes using Drawing-Book No. 5 of *Prang's Shorter Course.* It consists of 1 each of the following Solids, Teacher's size:—Cube, Square Prism, Equilateral Triangular Prism, Hexagonal Prism, Square Pyramid, Square Plinth. (In a wooden box) $4.00 net.

Models for Special Schools or Classes. Solids and Tablets.

Set No. 12.—This Set comprises 1 each of the following Solids, Teacher's size:—Sphere, Hemisphere, Cube, Square Prism, Cylinder, Right-angled Triangular Prism.

Also one each of the following Plane Geometric Figures, Teacher's size:—Circle, Semicircle, Square, Oblong, Right-angled Triangle. (In a wooden box) $5.00.

Set No. 13.—This Set contains 1 each of the following Solids, Teacher's size:—Elipsoid, Ovoid, Equilateral Triangular Prism, Cone, Square Pyramid, Vase.

Also 1 each of the following Plane Geometric Figures, Teacher's size:—Ellipse, Oval, Equilateral Triangle, Isosceles Triangle, Right-angled Triangle. (In a wooden box) $5.50.

Set No. 14.—This Set contains 1 each of the following Solids, Teacher's size, (sphere and cube 4" diameter):—Sphere, Hemisphere, Cube, Cylinder, Square Prism, Right-angled Triangular Prism, Equilateral Triangular Prism, Square Pyramid, Ellipsoid, Ovoid, Cone, Vase Form, Hexagonal Prism, Square Plinth, Circular Plinth.

Also the following Plane Geometric Figures:—Circle, Right-angled Triangle, Isosceles Triangle, Square, Ellipse, Oblong, Equilateral Triangle, Oval. (In a wooden box) $10.00.

Set No. 16.—This Set contains 1 each of the following Solids, Pupils' size (2 x 4"):—Sphere, Hemisphere, Cube, Cylinder, Square Prism, Right-angled Triangular Prism, Equilateral Triangular Prism, Hexagonal Prism, Ellipsoid, Ovoid, Cone, Square Pyramid, Square Plinth, Circular Plinth, Vase.

Also 4 each of the following Tablets, (2 x 4"):—Circle, Semicircle, Square, Oblong, Equilateral Triangle, Right-angled Triangle, Isosceles Triangle, Ellipse, Oval. (In a paper box) $0.75.

Models for Individual Pupils.

Set No. 20.—This Set comprises the following Solids (size 1 x 2"):—Sphere, Hemisphere, Cube, Cylinder, Square Prism, Right-angled Triangular Prism, and 6 each of the following Plane Figures:—Circle, Semicircle, Square, Oblong, Right-angled Triangle, and 2 dozen sticks, assorted lengths, 2, 3 and 4". (In a paper box) $0.15 net.

Set No. 21.—This Set comprises the following Solids (size 1 x 2″):—Ellipsoid, Ovoid, Cone, Square Pyramid, Equilateral Triangular Prism, Vase Form; and 6 each of the following Plane Figures:—Ellipse, Oval, Circle, Square, Equilateral Triangle, Right-angled Triangle, Isosceles, Triangle; and 2 dozen sticks, assorted lengths, 2, 3 and 4″. (In a paper box) $0.15 net.

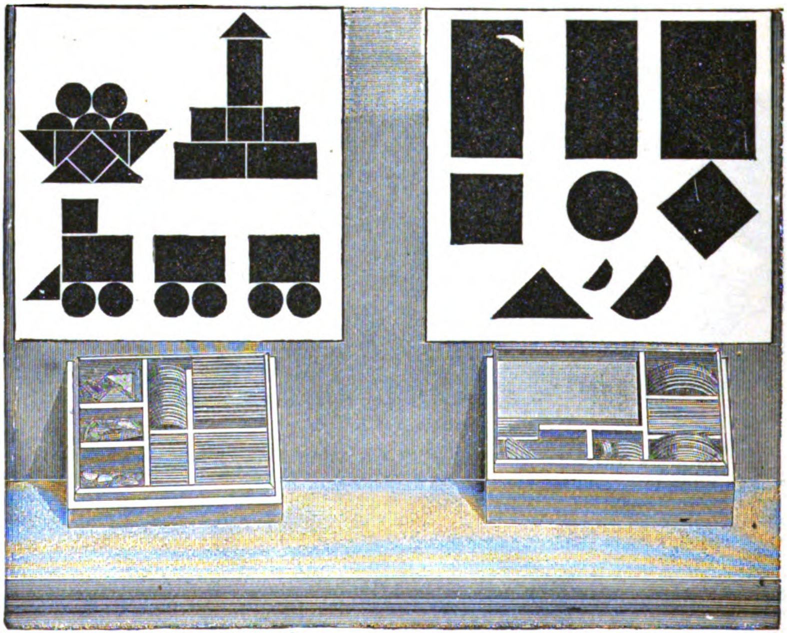
Set No. 22.—This Set contains:—Sphere, Hemisphere, Cube (size 2″ diameter); and 4 each:—Circle, Semicircle, Square; and 1 dozen 2″ sticks. (In a paper box) $0.15 net.

Set No. 23. — This Set contains: Cylinder, Square Prism, Vase Form (size 2 x 4″); and 4 each: Circle, Square, Oblong. (In a paper-box) $0.20 net.

Set No. 24. — This set contains: Equilateral Triangular Prism, Right-angled Triangular Prism, Ellipsoid, Ovoid; and 4 each: Ellipse, Oval, Equilateral Triangle, Right-angled Triangle. (In a paper box) $0.20 net.

B. Tablets.

Tablets, Set No. 1.—(For First Primary Year.) This Set contains the following 6 Tablets in 3 sizes—the largest size put up in a strong portfolio, the smaller sizes in handsome boxes: 1) Circle; 2) Square; 3) Broad Oblong; 4) Semicircle; 5) Right-angled Triangle; 6) Narrow Oblong. The complete set $6.25.



Tablets, Set No. 1. Group C. Group B.

Also separatly:

Set No. 1. Group A.—Teacher's size, 1 each of the 6 Tablets, (circle 12″ in diameter) $1.25.

Set No. 1. Group B.—Pupils' size, 40 each of the 6 Tablets, (circle 2″ in diameter) $2.75.

Set No. 1. Group C.—Pupils' size, 80 each of the 6 Tablets, (circle 1″ in diameter) $2.25.
These Tablets are sold separately or in bulk. For prices, see list on next page.

Tablets, Set No. 2.—(For Second Primary Year). This Set contains the following 8 Tablets—in 3 sizes—the largest size put up in a strong portfolio, the 2 smaller sizes in handsome boxes:—1) Narrow Ellipse; 2) Broad Ellipse; 3) Oval; 4) Equilateral Triangle; 5) Isosceles Triangle; 6) Right-angled Triangle; 7) Square; 8) Circle. The complete set $8.75.

Also separately:

Set No. 2. Group A.—Teacher's size, 1 each of the 8 Tablets, (long axis of ellipse 12″.) In portfolio $1.25.

Set No. 2. Group B.—Pupils' size, 40 each of the 8 Tablets, with additional forms, (long axis of ellipse 2″.) In wooden box $4.00.

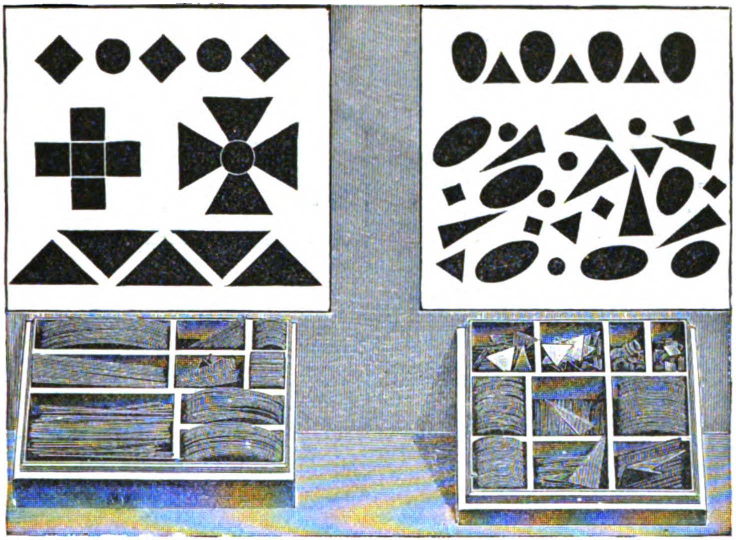
Set 2. Group C.—Pupil's size, 80 each of the 8 Tablets, with additional forms, (long axis of ellipse 2″.) In wooden box) $3.50.
These Tablets are sold separately or in bulk. For prices see list on next page.

Separate Pieces of Prang's Models.

Solids (Teacher's Size) A.

Cube, 4″ face, solid	$0.40
Cube, 4″ face, incised faces	.45
Cube, 4″ face, quartered diagonally	.60
Sphere, 4″ diameter, solid	.60
Sphere, 4″ diameter, halved and quartered	.75
Hemisphere, 4″ diameter	.50
Cylinder, 4 x 8″, solid	.60
Hollow Cylinder, 4 x 8″, divided and dowelled	1.25
Hollow Flanged Cylinder, 4 x 8″, divided and dowelled	$1.40
Cone, 4 x 8″, solid	.60
Double Cone, 4 x 8″	.75
Double Cone, 4 x 8″, divided and dowelled	1.15
Square Prism, 4 x 8″	.60
Square Prism, 4 x 8″, divided diagonally	.90
Square Plinth, 2 x 6″	.40
Oblong Block, 4 x 3 x 8″	.50

PRANG'S MODELS FOR FORM-STUDY AND DRAWING



Tablets, Set No. 2. Group B. Group C.

Solids, (Teacher's Size) A. — *Continued.*

Square Pyramid, 4 x 8"	$0.60
Square Pyramid, 4 x 8", divided and dowelled	1.00
Right-angled Triangular Prism, 4 x 5³/₈ x 8"	.60
Equilateral Triangular Prism, 4 x 8"	.60
Pentagonal Prism, 4 x 8"	.65
Hexagonal Prism, 4 x 8".	.65
Octagonal Prism, 4 x 8"	.65
Circular-Plinth, 2 x 6"	.40
Cubical Steps, 4" face	.50
Flight of Three Steps, 8" long, 2" tread, 1²/₃" riser	.75
Cross, 2 x 6"	.30
Chimney Model, 4 x 8", divided and dowelled	1.00
Egg and Egg Cup, 4 x 8"	2.00
Spool, 6 x 8"	1.50
Frame *(a)* 12" square, 4 pieces halved	.40
Frame *(b)* 12" square, 4 pieces mortised	.40
Bracket Model, 8 x 12 x 1"	.75
Pulley Model, diam. 5", divided and dowelled	1.25
Vase *(a)* 8 x 12"	3.00
Vase *(b)* 8" high	.75
Vase *(c)* 8 x 12"	3.00
Vase *(d)* 6" high	.75
Ovoid, 4 x 6"	.75
Ellipsoid, 4 x 6"	.75

Solids (Pupils' Size) B.

Cube, 2" face	$0.05
Square Prism, 2 x 4"	.05
Square Pyramid, 2 x 4"	.05
Right-Angled Triangular Prism, 4" long	.05
Equilateral Triangular Prism, 4" long	.05
Sphere, 2" diam.	.05
Hemisphere, 2" diam.	.05
Cylinder, 2 x 4"	.05
Cone, 2 x 4"	.05
Ellipsoid, 2" short diam.	.05
Ovoid, 2" short diam.	.05
Vase	.05
Double Cone, 2 x 4"	.05
Hexagonal Prism, 2 x 4"	.05
Square Plinth, 3 x 3 x 1"	.05
Circular Plinth, 3 x 1"	.05

Solids (Pupils' Size) C.

Cube, 1" face	$0.03
Square Prism, 1 x 2"	.03
Square Pyramid, 1 x 2"	.03
Right-Angled Triangular Prism, 2" long	.03
Equilateral Triangular Prism, 2" long	.03
Sphere, 1" diam.	.03
Hemisphere, 1" diam.	.03
Cylinder, 1 x 2"	.03
Cone, 1 x 2"	.03
Ellipsoid, 1" short diam.	.03
Ovoid, 1" short diam.	.03
Vase	.03

Tablets (Teacher's Size) A.

Circle, 12" diam.	$0.25
Square, 12" diam.	.25
Broad Oblong, 12" long	.25
Semicircle, 12" diam.	.25
Right-Angled Triangle, 12" long	.25
Narrow Oblong, 12" long	.25
Isosceles, Triangle, 12"	.25
Equilateral Triangle, 12"	.25
Broad Ellipse, 12"	.25
Narrow Ellipse	.25
Oval	.25

Tablets (Pupils' Size) B.

Circles, 2" diam.	per hundred	$1.00
Semicircles	per hundred	1.00
Squares	per hundred	1.00
Oblongs	per hundred	1.00
Triangles	per hundred	1.00
Ellipses	per hundred	1.00
Ovals	per hundred	1.00

Tablets (Pupils' Size) C.

Circles, 2" diam.	per hundred	$0.50
Semicircles	per hundred	.50
Squares	per hundred	.50
Oblongs	per hundred	.50
Triangles	per hundred	.50
Ellipses	per hundred	.50
Ovals	per hundred	.50

(Prices for quantities will be quoted on application.)

(Prang's) The Use of Models. *A Teacher's Assistant in the use of the Prang Models for Form-Study and Drawing in Primary Classes.* Boards $0.50 net.

Prang's Drawing Books, Clark Edition. *(American Text-Books of Art Education. Revised Edition.)* No. 1, 2, 3, 4, 5, 6, per dozen $1.00 net.

(Prang's) Teachers' Manual. Part I, II, III. *To accompany Drawing Books* No. 1 and 2, — 3 and 4, — 5 and 6, respectively. Boards, each $0.50 net.

Prang's Drawing Books, Clark Edition. No. 7, 8, 9, 10, per dozen $2.00 net.

Prang's Shorter Course in Form-Study and Drawing. No. 1, 2, 3, 4, 5, per dozen $1.80 net.

Teacher's Manual for Prang's Shorter Course in Form-Study and Drawing. Boards $0.50 net.

E. STEIGER & CO., 25 Park Place, NEW YORK.

Frœbel's Kindergarten Occupations for the Family.

A series of Boxes containing Material, Diagrams, and Instructions.

For Boys and Girls.

1. Stick-laying.

500 assorted Sticks, 1, 2, 3, 4, and 5 inches long respectively, 265 Designs on 12 plates, and Instructions. Price $0.75

Designed to teach correctness of form, the elements of numerical and geometrical proportions, and to arouse the inventive faculties.

2. Net-work Drawing.

1 Slate, 6¼ by 8½ inches, grooved on one side, in squares (¼ inch wide); with narrow frame, rounded corners, 3 Slate pencils, 94 Designs on 12 plates, and Instructions. Price $0.75

Designed to teach the first principles of drawing and art-instruction, to train eye and hand in a systematic but progressive manner, and to develop the intellect.

3. Perforating (Pricking).

2 Perforating-Needles, 1 Perforating-Cushion, 1 Package of 10 leaves of paper, ruled in squares on one side, one Package of 10 leaves of heavy white paper, 93 Designs on 12 plates, and Instructions. Price $0.75

Designed to advance the child still further in art-instruction, and to create a faculty for free-hand drawing and the production of artistic and beautiful forms. — The objects thus made may be used for various purposes in the household.

4. Weaving (Braiding or Mat-plaiting)

1 Steel-Weaving-Needle, 20 Mats of assorted colors and widths, with corresponding strips, 75 Designs on 12 plates, and Instructions. Price $0.75

Designed to teach neatness and accuracy, and thus to convey a knowledge of the proper combination of colors.—The objects thus made may be preserved and used as bookmarks, and in various other ways.

5. Embroidering.

Worsted, of 12 different colors, and 3 Worsted-Needles, 1 Perforating-Needle, 10 pieces of Bristol Board, 1 piece of Blotting paper, 10 leaves of white paper, 136 Designs on 12 plates, and Instructions. Price $0.75

Designed to teach the elements of fancy-work, to convey correct ideas as to number and form, and to still further educate the eye in the selection and combination of colors.—The objects produced (like those of most of the other Occupations) look pretty, and may be used as presents.

6. Cork- (or Peas-) Work.

60 Cork Cubes, 60 pieces of Wire, 1, 2, 3, and 4 inches long, respectively, 1 Piercing-Pin, 108 Designs on 12 plates, and Instructions. Price $0.75

Designed to instruct in the proportions of geometrical figures and in the production of outlines of solids and of real objects, while teaching also accuracy of measurement and the elements of perspective, etc.

7. Plaiting (Slat-interlacing).

30 Wooden Slats, 9 inches long by ½ inch wide, and 30 Slats, 6 inches long by ¼ inch wide, 93 Designs on 12 plates, and Instructions. Price $0.75

Designed to teach precision and nicety of adjustment to instruct in geometrical form, and to stimulate the invention of fancy figures.

8. Ring-laying.

10 Rings and 20 Half Rings, of 2 inches, 1¼ inch, and ¾ inch diameter respectively, 107 Designs, and Instructions. Price $0.75

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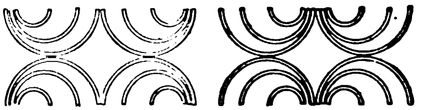

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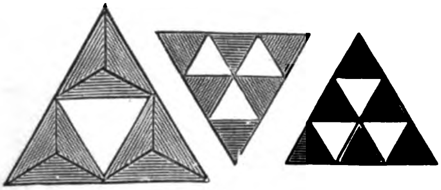

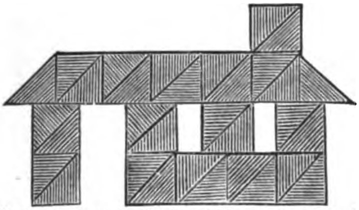

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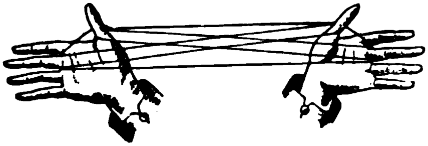

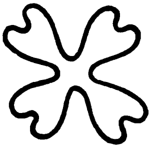

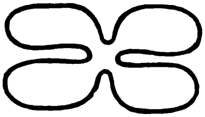

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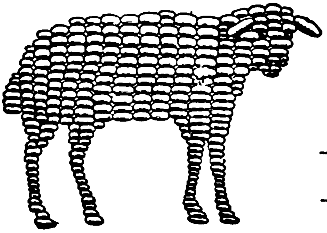

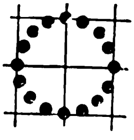

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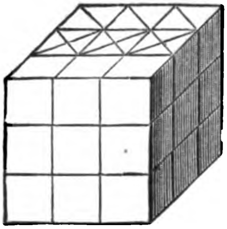

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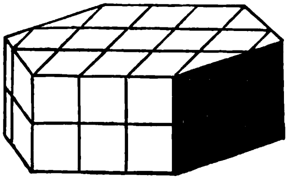

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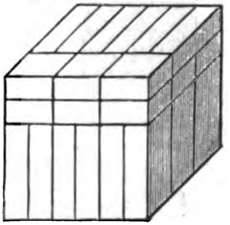

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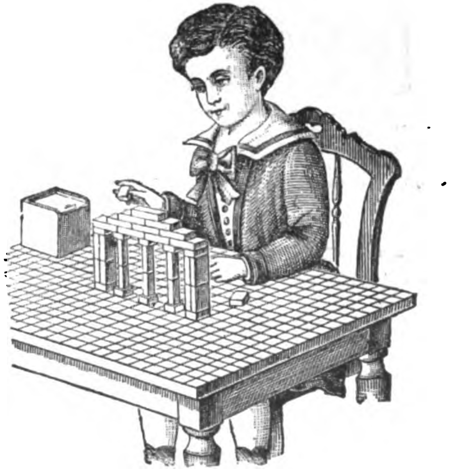

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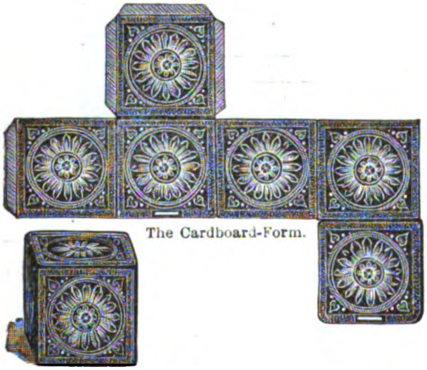

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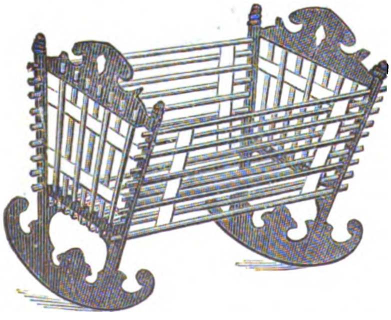

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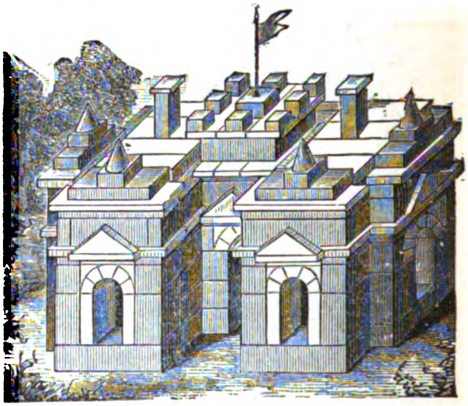

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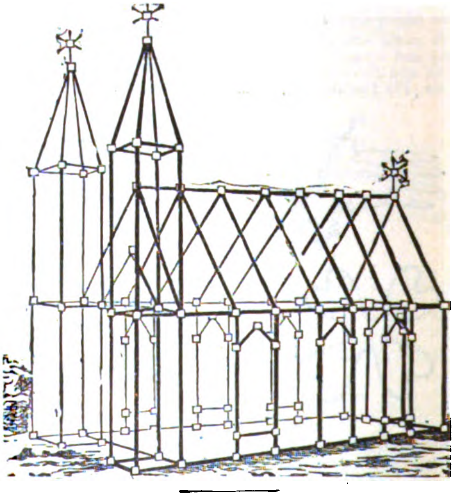

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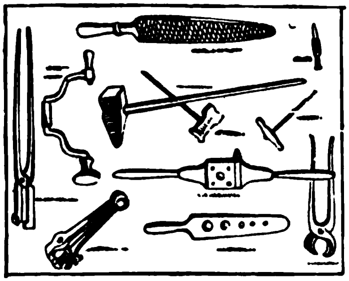

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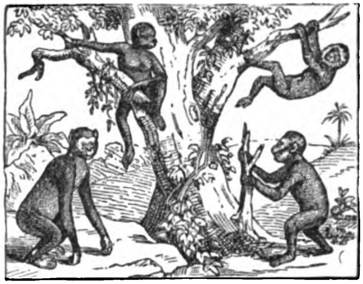

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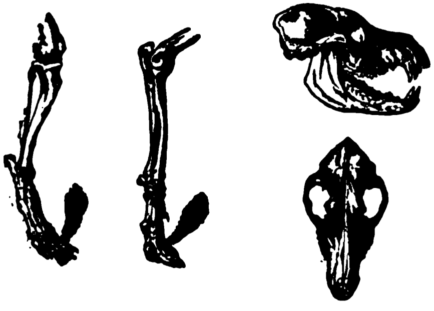

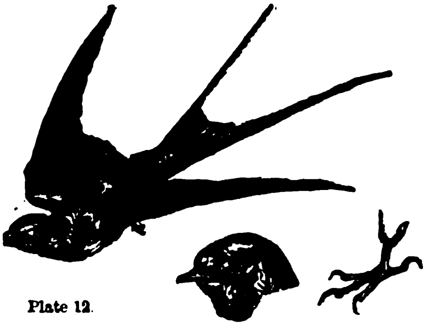

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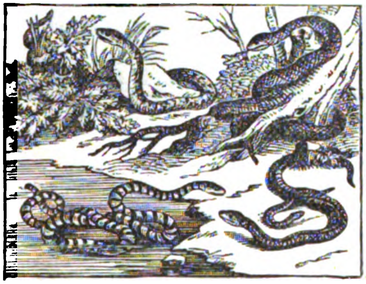

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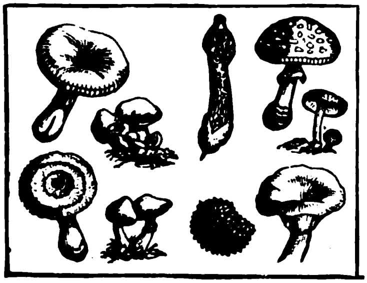

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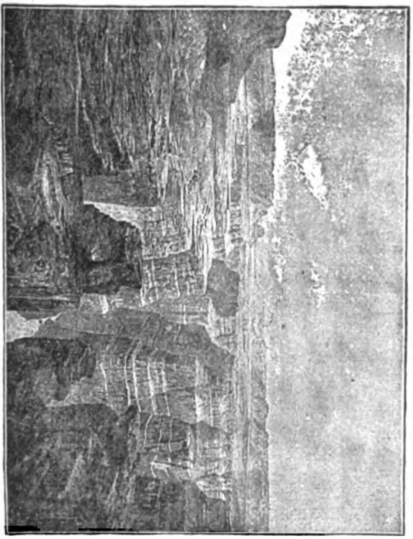

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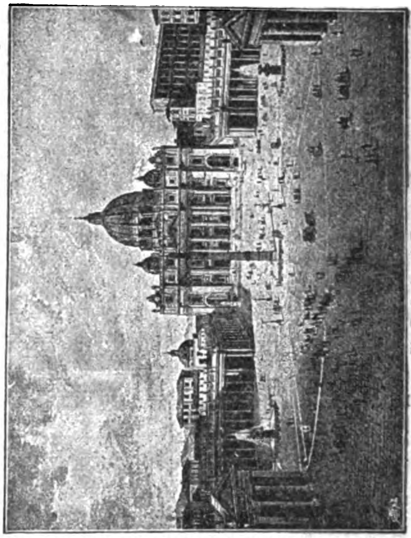

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